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SANTA SUSANA FIELD LABORATORY

ROCKETDYNE WORKGROUP MEETING

DECEMBER 11, 2002

Meeting held Wednesday, December 11, 2002, from 6:30 p.m. to 10:35 p.m., at the Grand Vista Hotel, Grand Ballroom, 999 Enchanted Way, Simi Valley, California, before Mark S. Patterson, Certified Shorthand Reporter, Certificate No. 12432.

VICKI ROSEN: Good evening. Let's go ahead and get started. My name is Vicki Rosen. I am with the U.S. EPA. I am a community event coordinator. I am not a public relations person, that is a different part of the EPA. A community event coordinator is someone who works with technical people and communities who are affected by contaminated sites. And I help the communities deal with those issues and make them part of the clean-up process and the decision-making process. So that's just a little bit about my background.

My job at this event is to facilitate the Workgroup meeting, and so that's what I will be doing here tonight. Many of you might have received a notice about this meeting for the first time. The reason for that is that our friends at the State of California Department of Toxic Substances Control did some excellent outreach in the Simi Valley area and were able to expand the mailing list so that more people will get notices of these Workgroup meetings, which actually happen on a fairly regular basis and have been going on for a long time. They are generally held quarterly. So if this is your first Workgroup meeting, we welcome you and hope that you will find it interesting.

The purpose of the Workgroup is to -- it's kind of threefold. First, it's to coordinate the

activities as related to the site between the various regulatory agencies. It's also to exchange information among the agencies, as well as community representatives. And, in addition, it's to inform the public about what's going on and to hear questions and concerns from the public so the agencies hear what you are thinking so, ultimately, we have a better cleanup, and we have a better environmental response to the problems.

Now, EPA's role in these meetings -- we are getting -- we chair the Workgroup, we coordinate, and we facilitate the Workgroup meetings. Now, the meeting that we're having here tonight is not like a typical public meeting that you might be used to attending. It's a working body. And as I said, we have been meeting for a long time. So there may be some discussion that you might not easily understand. We are going to try and make it as understandable to you as possible. But please keep in mind that we have been working together for a long time and it might take you a little while to get up to speed on what it is we're talking about, but we'll do our best to try and clarify things for you. And if you continue to come to these meetings, it won't take you long to really get up to speed on the various terms and what's going on at the

site. So be patient with us.

We also -- in the future, we might hold more public meetings where we will have a limited agenda so we can concentrate on a couple of items. And in doing that, we would be presenting things more directly to the public rather than as a Workgroup. So that just kind of explains a little bit of the difference in this type of meeting.

As you see by the agenda, we have a lot to cover. We have specific presentations that -- and each presentation is then followed by a public question-and-answer comment period. The length of that period will depend on how much time it takes us to get through those various discussions. But I'm figuring maybe 10 or 15 minutes for public discussion following each presentation. And then we have set aside time later in the evening for just general public discussion. So what that means is we -- when the public comment part comes after each topic, if you could speak directly about that topic, we'd appreciate that. And if not, then if you would please hold additional questions and comments until the part later on in the agenda where we can cover that, we would appreciate that.

Another thing that I'd like to request is that you save your questions and comments until the public

period and not interrupt during the presentation, with one exception: If you need something to be clarified, for instance, if somebody at the table uses a term that you don't understand and you need to have that clarified in order to be able to better understand what's being discussed, please raise your hand and I will call on you. Otherwise, please keep your questions until the end of that presentation.

In the past, we have had some great difficulty in covering everything that's been on the agenda. As a matter of fact, we get way behind and don't get to cover the full agenda. We think that we have a lot of interesting topics on tonight's agenda that you, as the public, would like to hear about. So I'm going to ask your help in trying to stay on schedule so that you are able to hear all the discussion. And I note that we may want to talk about things longer than we have actually got time set aside for. In that case, I'm sure that many of us from the agencies will be happy to stay around after the meeting for a little while to talk to you further, or I can help arrange for you to talk additionally to agency personnel at another time if you have got specific issues that you would like to discuss further. So we'll try to accommodate you further one way or another. But we hope to get everything covered

on schedule so that you will all be better served.

Just a couple of basic ground rules that I would like to talk about. Number one, please hold your questions until the end of each presentation, and I will just ask for common courtesy from everybody. Sometimes we disagree a great deal about some of the issues being discussed. There is a lot of debate going on, but we can agree to disagree in a courteous manner if that's the case. So I would just like to request that of everybody.

Please, if one person could speak at a time not only would we appreciate it, but the court reporter, who is sitting right here in front, would appreciate it so he can get down all of the proceedings. And, by the way, this transcript from the meeting will be available in the information repositories for anybody who would like to read about it again.

Now, issues that don't fit into any specific topic that we're discussing we are going to defer either to the part of the agenda toward the end where we open it up to anything, or we're going to defer it to another meeting so that we can adequately cover what's on the agenda.

And with that, I would like to ask that each of the Workgroup members state their name, who they work

for, and what they do, especially as specifically related to the Santa Susana site. And so we will start down at this end with Gerard.

GERARD ABRAMS: Good evening. My name is Gerard Abrams for the Department of Toxics. I'm a project manager for corrective action for the Rocketdyne site.

PAULINE BATARSEH: I'm Pauline Batarseh, Department of Toxics. I'm a supervising engineer, and I work on the cleanup at Rocketdyne.

RICK MOSS: I'm Rick Moss, and I'm with the DTSC.

MARY GROSS: Hi. I'm Mary Gross from the U.S. Department of Energy, and I'm the deputy division director for the Oakland Environmental Programs Division for our ETEC site.

ROGER GEE: Good evening. I'm Roger Gee from the Department of Energy in Oakland.

MIKE LOPEZ: I'm Mike Lopez. I'm the DOE environmental restoration project manager for the ETEC site.

MIKE BROWN: I'm Mike Brown, division director for Oakland Environmental Programs Division, Oakland operations office, and I am -- the DOE is responsible for the ETEC cleanup.

BARBARA JOHNSON: Hello. I'm Barbara Johnson, a

public member of the Rocketdyne Cleanup Coalition, and I've been doing this for quite a few years.

SHELDON PLOTKIN: Shell Plotkin, Southern California Federation of Scientists, one of the community representatives.

JONATHAN PARFREY: Jonathan Parfrey, executive director of Physicians for Social Responsibility in Los Angeles.

JOHN BEACH: I'm John Beach with the U.S. Environmental Protection Agency. I'm the EPA project officer for the Santa Susana Field Laboratory facility.

LARRY BOWERMAN: I'm Larry Bowerman, and I'm manager of the ~~Workgroup~~ RCRA Corrective Action Office at EPA's office in San Francisco.

ARLENE KABEI: Hi. Arlene Kabei, also with U.S. EPA San Francisco, and the associate director of the waste management division there.

DICK HOPPER: Good evening. I'm Dick Hopper. I'm with the Radiation and Indoor Environments Laboratory in Las Vegas, and I'm the deputy lab director.

DAVID WESLEY: I'm Dave Wesley with the California Department of Health Services. I'm in charge of the materials licensing and similar operations at the ETEC site.

STEVE HSU: I'm Steve Hsu. I'm also with the

Department of Health Services, senior health services, involved in the Boeing ETEC cleanup activities.

ROBERT GREGER: Good evening. My name is Robert Greger. I'm with the California Department of Health Services, and my involvement is with licensed operations under the Boeing license that is issued by the Department of Health Services, and my particular interest is in inspection and enforcement of that license.

VICKI ROSEN: Okay. Thank you, all. And I just would like to say that Dick Hopper is taking Greg Dempsey's place from the Las Vegas laboratory for those of you who have been to these meetings before and remember Greg.

Thank you, Dick, for coming tonight.

DICK HOPPER: I would just like to make an announcement. Most of you know Greg Dempsey. He is stepping down as a manager at EPA at his request. Greg has taken on a lot of added responsibility. He is our emergency response coordinator, but also now with Homeland Security. He will still be an active participant here at the meetings. He had a conflicting meeting tonight. He is in Hawaii this week. So I fully intend for him to be back here at the next meeting. And as long as he is at the Las Vegas laboratory, he will

play a part in this project here. Thank you.

VICKI ROSEN: Thank you, Dick.

Are there any people who are going to be taking videotape of tonight's proceedings in the audience? Okay.

I'd also like to ask if there are any elected officials in the audience. And if so, would you like to introduce yourself, identify yourselves? Anybody here?

Yes, ma'am.

SPEAKER: I'm Janice Lee. I'm a City Councilmember and former mayor of the city of Calabasas.

VICKI ROSEN: Hello.

Anyone else?

SPEAKER: I'm Laura Plotkin here representing State Senator Sheila Kuehl.

VICKI ROSEN: Thank you.

SPEAKER: Jeremy (inaudible) representing Supervisor Judy Mikels' office.

VICKI ROSEN: Okay. Anybody else?

Thank you very much.

And now we're going to begin our presentations with the Department of Energy. Is it going to be Mike or Roger first? Okay. It's going to be Roger.

ROGER GEE: Again, I would like to echo Vicki's welcome to you all this evening. I know it's a

commitment on your part to be here, and we all appreciate that.

I'd like to start off our presentation to give you an idea of what is going on in our headquarters because I feel this is going to be important for you to understand our processes for decision-making. And this is something new, so I want to bring everybody up to speed. Let me just explain this new group that's being formed at headquarters.

Let me start by saying that the incoming administration, they had initiated a top to bottom review of our agency, which was -- began, like, in the February time frame. One of the items that came out of that is that small sites, of which ETEC was defined as one of those sites, had not received or could have gotten more help or attention in the way that we need to have to move forward. As a result of that, the assistant secretary for the environment created a focus team for these small sites called the National Focus Project. That was around June of this past year. Twenty-three sites were identified under this project. In late October, they made their first visit to the first site on their list. Fortunately for us, ETEC was that site.

So I bring this up because there may be some

issues later on or discussion about how decisions are made or what's being considered that this will come up against, so I want to at least get this out so that you understand the process going out of our headquarters.

I would like to cover two particular things in my part of the presentation. The first is the draft of the Environmental Assessment. The Department of Energy in Oakland is waiting for the approval of the final release of the Environmental Assessment.

Now, we have reported to you the status in the past and that hasn't changed. But what has changed is the draft EA is also within the scrutiny and the assessment of this focus team. The draft EA was briefed to this focus team, and so this is where we are at right now. We're still waiting for our headquarters and the focus team for their concurrence in the final release of the environmental -- draft Environmental Assessment.

The next item I would like to cover is FYO3 budget. Now, our budget year in the Department of Energy begins October 1st, this would be 2002, and will extend to September 30, 2003. We're already in that particular fiscal year. The budget that was planned for the current fiscal year is roughly $17 million. Because we're under the continuing resolution, we will -- it was basically a situation where Congress is currently

working on a budget, so a continuing resolution allows the government to function until the time they adopt a new budget. That resolution is effective until January 2003.

Now, right now we don't know if there will be a budget before then or whether our continuing resolution will continue and extend beyond that January time frame.

Right now the budget that we have from headquarters allows us to continue to work at a rate roughly equivalent to about $12 million a year. What that does is that it lets us continue to work to safely manage the materials that remain on site right now.

And I'd like to now pass it on to Mr. Michael Lopez, who will talk about the projects we have ongoing.

MIKE LOPEZ: Okay. I was asked to give an overview of the D&D status at the site, so I'm going to talk about the status of our radiological D&D.

VICKI ROSEN: Excuse me, Mike. I'm story to interrupt. But could you please tell us what D&D is?

MIKE LOPEZ: Oh. I'm sorry. Thank you. Decontamination and decommission, or demolition, as the case may be.

Just for those of you who may be new to these

meetings, I want to show you the site. On the left-hand photo we show Santa Susana Field Lab as it relates to Simi Valley and Woodland Hills. And then on the right is the Santa Susana Field Laboratory in a little bit greater detail. It's divided into four areas. DOE is strictly within Area IV in approximately that little blue oval. So we occupy only about 90 acres out of the 2700-odd acres that comprise the Santa Susana Field Laboratory.

Just another way to look at the site now. This is Area IV, the DOE area in the foreground, and the San Fernando Valley in the background.

And now a closeup shot, SSFL Area IV. In the foreground is where we used to have the hot cell laboratory. 1998 is important for us because that's when we started our current contract.

SPEAKER: What is a hot cell laboratory?

MIKE LOPEZ: It was a facility for handling some irradiated fuels, spent fuel and some --

SPEAKER: What kind of fuels?

MIKE LOPEZ: It was all nuclear fuels.

Originally, we had 28 nuclear facilities at ETEC. Over the years, we have decontaminated, demolished most -- or a number of them. We have done cleanup on 25 of the 28. And I want to walk you through

the process we use.

After we finish our decontamination/decommissioning work, Rocketdyne does a survey. Then we have a -- we have the Oakridge Institute for Science and Education, which is out of the DOE contract out of headquarters, they come and do a confirmatory survey. The State Department of Health Services does surveys now. They did not in the beginning, but they have been for the last seven years or so. And then most recently, the Environmental Protection Agency has done yet another survey on the facilities that were not released. And I will give you a little more detail on those in a minute.

I just want to show you another way of looking at the fact that we have done most of the decontamination work on our radioactive facilities. The ones in green are the ones that are done; the ones in red are the ones that still remain. There are only three red ones: Building 59 on the left, the bottom, which houses the snap reactor; Building 24 did some of the same work; and then the radioactive materials handling facility, which is the big red block. Everything else has been completed.

BARBARA JOHNSON: Mike, can I ask you to what standard do you say they're completed or done?

MIKE LOPEZ: We comply with the existing regulations for buildings. There is a DOE order that applies to the buildings, and there's a NRC regulatory guide that governs the buildings. That is in the purview of the State Department of Health Services. EPA does not have its own regulations for surface contamination in buildings.

SHELDON PLOTKIN: May I interject that from the community standpoint, we have been objecting for 13 years during the whole approach of this thing, and we object because we are cut out of the process. And I'm not going to argue about it. I just want to make sure the record shows that the community objects to all of these released buildings. They may have been cleaned and so forth, but we are not sure about that. We haven't been allowed into the process.

MIKE LOPEZ: Well, the EPA is doing surveys of buildings, and these are the buildings that they have conducted their own surveys on.

SHELDON PLOTKIN: And there are objections to that too.

MIKE LOPEZ: I know.

BARBARA JOHNSON: We could have been much more responsive to this had we gotten this information before the meeting. I know that on the 2nd, we got a very

skinny report from you that -- you didn't have this information available on the 2nd of December?

MIKE LOPEZ: Yes. As a matter of fact, I just pulled this stuff together this week, Barbara.

VICKI ROSEN: I was just going to say that we don't want to have too much of a debate here -- if we could do this as soon as his presentation is over. I understand the value of doing this. Believe me, I do. But I think we have got to try and find a time when we can talk a little more productively about that.

Jonathan, did you want to say something?

JONATHAN PARFREY: I just know that there was an agreement that there would be materials that would be diseminated so that community representatives would have an opportunity to be able to review the material that's being submitted so we could have an intelligent response. This is the first step. We are seeing Mike's presentation.

VICKI ROSEN: And for the public's benefit, we did try and work this out prior to this meeting where everybody could get materials in advance of the meeting. So that's what this part of the discussion is about.

MIKE LOPEZ: This is just an overview. It's not much detail.

Okay. I just wanted to show you a few of the

buildings we have worked on in the past. This is the hot cell laboratory, the way it looked a number of years ago.

And this is the facility, the bare spot is where -- what it looks like today basically.

SHELDON PLOTKIN: Can you tell us where you shipped that radioactive concrete?

MIKE LOPEZ: The radioactive concrete, the waste was -- would have been shipped to -- I believe to the Nevada test site.

This is the former sodium disposal facility after remediation. It is the area on the other side of that road after it's been -- after we removed all the soil, we backfilled it with clean soil from the site, and then revegetated it, planted a lot of native grasses and some trees.

SPEAKER: Do you know how much of the soil you removed?

MIKE LOPEZ: All told out of the two campaigns, two separate activities, we removed approximately 22,000 cubic yards.

SPEAKER: Upper layers or --

MIKE LOPEZ: Essentially we excavated it down to bedrock.

SPEAKER: Which is how many feet?

MIKE LOPEZ: It kind of -- the depth varied because it was not a level area. I don't know. Maybe the deepest -- Gerard? Ten feet?

GERARD ABRAMS: 22,000 cubic yards' worth. It varies in depth.

MIKE LOPEZ: The area was about six acres, perhaps a little bit more.

And then this is my last one. One of our three remaining radioactive contaminated facilities. The building itself has actually been cleaned up and surveyed and it's released. It is one of the things we will start working on once the EA is done. The contamination is all below grade on this building.

And that's it for me.

VICKI ROSEN: So is that the extent of the Department of Energy's presentation?

MIKE LOPEZ: Yes, it is.

VICKI ROSEN: What I would like to do is open the floor to public questions about what you just heard or anything related to these types of activities. If anybody -- and you are welcome to just get up in place if people can hear you. Otherwise, we have a microphone here in the center of the room, so just line up or whatever works easiest for you.

Actually, I think it might be to everyone's

benefit if you could go to the microphone because it's a large room.

SPEAKER: On the green and red map, when was the green completed and when was the red completed?

MIKE LOPEZ: The green areas occurred over time from the 1970s up through the late 1990s. The red areas are within the next five years maybe, somewhat dependent upon funding.

SPEAKER: I actually have two questions. Has -- after the exterior of Building 4059 was surveyed and released, you indicated that all of the contamination was below grade.

Was there a hundred-year logic characterization made of the site in terms of anything that might have existed as seismic, or did you test any of the ground water, and at what depth?

SHELDON PLOTKIN: While you're waiting for them -- the ground water is completely contaminated for the whole site, and it goes down to the aquifer. We have been fighting about that for a long time. It doesn't have to do with just the one building; it's the whole site. The problems we have with the decontamination and so on and so forth is that we are cut out of the loop most the time. And once in a while, when we get in, we sometimes discover things that are kind of extreme. I

don't know if you want to hear details.

SPEAKER: Yes, we would.

SHELDON PLOTKIN: Well, on my own, you know, I have been up there only a couple of times. The last time the snap reactor building that was being monitored by the EPA, the EPA was coming in and doing the monitoring because the public had objected to Rocketdyne DOE being in charge of monitoring the building and taking measurements, et cetera. We have had experience that -- sad experience for us in the past, so EPA was doing it.

Well, they were kind enough to invite us in. So it turns out that in that snap reactor -- a snap reactor is a space nuclear auxillary power, something like that, it's a nuclear power reactor designed to be put into space. The building is pretty much a rectangular building with flat concrete floors, except there's a big steel plate in the middle. The steel plate is about 12 or 15 feet in diameter. And below that plate is a pit that goes down into the ground. I don't remember exactly how far, but it's something like 25 or 30 or 35 feet or so. And when I asked what that was for, well, that's where the reactor goes when they do the testing.

So EPA at the time was meticulously -- with their contractor, was meticulously going over every

square foot of wall, a number of floor samples were being taken, a concrete core being drilled, et cetera.

And I asked what are you doing at the bottom of the pit?

Well, nothing. Rocketdyne had already done it. And they said it was okay. So we're not doing that.

Well, the one place in the building that might have radioactive contamination would be the bottom of the pit. In fact, if the bottom of the pit was clean, then there would be no reason to be doing the rest of the building because that's where the reactor was. That's where the source of the radioactive contamination would have been.

So I -- I did the best I could to encourage them to monitor and take samples, et cetera, at the bottom of that pit. And I was told various reasons, which I won't go into, but they didn't do it, wouldn't do it. And as far as I know, they haven't done it.

Now, the question I have is that the -- well, if that's what happened in the one place that I got to look at, how about all these buildings that have been decommissioned already? They've got -- you saw 89 percent of the buildings have been set up and been said to be clean and ready for unrestricted use. And

I'm not so sure that they're really that clean and things have been cleaned up properly. And then there's a question of where the contaminated material goes. All of those things have to be looked at.

SPEAKER: I just wanted to clarify. The one question that really provoked me to stand up had to do with what characterizations beneath the work at the ETEC site has been done addressing fault zones? And if there is any information, has it been documented, and is it available to my city as a matter of public record?

VICKI ROSEN: Mike, do you want to address that?

MIKE LOPEZ: Well, I don't know what has been done about the seismic zones. We could ask Rocketdyne about that.

As far as the ground water goes, there are a lot of wells around the site, around Building 59 in that area, monitoring wells. There is no radiological ground water contamination associated with Building 59.

SPEAKER: That's not -- pardon me. That's not the focus -- I guess the question is very simple. Has there ever been, since any of these agencies, state or federal, has there ever been a study to characterize fault lines or fault zones on the entirety of the property of the ETEC site?

And I ask that question because we are under

the impression now from the letter from the Secretary of Energy that the Calabasas landfill may have been a recipient of some of the disposal materials. That is ongoing. But the County sanitation provided me with a copy of a geologic study done just in the last two years, I think in 1999, which does identify in the landfill itself several fault zones, which up until this year were categorically denied that they existed. Now I'm seeing them.

And I want to know if Rocketdyne is similarly going to do it if they have not done it; and if not, will you ask for it?

MIKE BROWN: What you are talking about is the entire Santa Susana Field Laboratory site, not just the ETEC site?

SPEAKER: Specifically, the ETEC site. We're talking, what, 2,600 acres here?

MIKE BROWN: Well, but the ETEC site is only 90 acres. And there is a site hydrogeologic model based on the works of the ground water contamination at the entire site. But I will refer you to -- we have a small portion of that ground water contamination that I would refer you to the documents. And I think the Department of Toxic Substances Control would that have -- talk to that larger hydrogeologic model.

SPEAKER: The point I'm trying to make here is that clearly the site lies between the Santa Susanas and the Santa Monica Mountains, and it is tectonically active. Rocketdyne sits between the two. And it would be almost unbelievable to think that you have been doing cleanup efforts without having done any type of investigation about the seismic activity. And if you have not, my task force has -- tonight wants to make a recommendation to you that you employ global positioning systems across Rocketdyne. We would also like to see it across Ahmanson and the Calabasas landfill. This is a technology that is good science. It is current. It is being used by the U.S. Geologic Survey in 250 monitoring stations across the state of California to determine seismic activity, and it can detect ground movement as little as six centimeters.

If we have a tectonically active area seismically, and after the Northridge earthquake we know that the Las Virgenes bridge directly -- southward from this site dropped eight inches and there was moderate damage at the landfill, that if the Rocketdyne site sits on an aquifer and we are now finding contaminants in a site between Rocketdyne and the landfill, and the site of the landfill is producing plumes of the same chemical, TCE, that we were finding at Rocketdyne, we

have to know in a global sense how to piece the pieces of these puzzles together to see what we are really dealing with.

I would urge you, if you have an interest in following the recommendation of my task force, I would be happy to give you the name of the company that does this. They are out of Utah, and they are willing to come here as quickly as possible to set up a system that will give you an hourly, daily, weekly, realtime reading, and we can finally, once and for all, determine what is happening in the mountains and those valleys and on and underneath and perhaps even giving us an understanding of what is happening at depth, not just at the landfill and the areas that have been breached with contaminants, but at Rocketdyne itself. And that would be my recommendation.

VICKI ROSEN: Thank you, Ms. Lee.

Is there anybody else at the table who would like to address the seismic issue?

MIKE LOPEZ: I just want to say one thing on that. I do know that after the Northridge Earthquake, there was no damage at the site from the earthquake. For discussion of the fault zones, perhaps we could have Boeing discuss that because I don't know what it is.

SPEAKER: I just want to point out that after the

1994 earthquake, I walked a pattern across an area that roughly follows the front of our Las Virgenes Metropolitan Water District office on Las Virgenes Road, across through a steeplechase, which is an area of our city that was completely red-tagged, through an area of Saratoga Hills, where entire walls of houses came off foundations, and then it leapfrogged. And on the other side of the landfill, which we were not privy to get onto, it continued across into and through driveways. And from an aerial perspective, the line drawn went directly through the southwest corner of the Calabasas landfill. And it coincided with -- two years later, within the two areas of the landfill where the two plumes of TCE were breaching concrete subsurface barriers.

I would pose to you that I probably am seeing a lot more than you are about the obvious. And I would like to insist that this be explored in this entire global area because I believe we are not looking at the global picture here. The reason I raise that is because our landfill has 650,000 tons estimated, probably underestimated, of toxins that were buried on permeable soil without bedliners. And this all sits -- Rocketdyne, Ahmanson, and the Calabasas Landfill all sit at the top of the Malibu Creek watershed, and it goes to

the Pacific Ocean. And if we have an aquifer that is in a seismic area and what it's showing us is that symptomatically there are problems, why aren't we investigating that first to see what we are really dealing with? We have the technology to do that. I urge you to do it. And frankly, if I don't have any assurance tonight that you are going to do it, then I will ask our task force to insist on it being done.

VICKI ROSEN: Thank you. We are going to let some of the others --

SPEAKER: I just want to make sure there is no mischaracterization here. We are very concerned about this. Our whole city is concerned about this. And these are -- all three sites have detected contaminants. They all sit on seismicity. There are agencies that are supposed to oversee it for the public health. They're not taking the most obvious action, apparently, from what I'm hearing tonight, and that troubles me deeply. And I'm not going to allow anyone to tell me that I don't know the information, because I have been working on this for 10 years.

MIKE LOPEZ: I'm sorry. I wasn't trying to imply that.

SPEAKER: I understand. Sir, I am asking this panel tonight, I am asking you to give me a certainty

that you will follow through and do a seismic study. And I am giving you the tool to do it with. And however the funding is required, my city is prepared to step forward and participate in the funding. So you cannot use funding as a reason not to do it. The public safety is too great. And this is an area that has been left without an answer, and it is the greatest answer that needs answering. And with that information, you will have a tool to detect much more than just earth movement. You will know where to look for the contaminants. And that, to me, seems like the most logical place to start. And after all these years of cleanup and all the questions and concerns of the community, I would suggest to you that if this is not a reasonable approach, then perhaps we have to start over again with the program that we are talking about tonight.

VICKI ROSEN: Ms. Lee, could you talk after the meeting tonight with myself and John Beach about this issue? Thank you.

SPEAKER: My name is Bonnie Klee. In 1963 I worked in Building 59 on the snap reactor program, and I subsequently developed bladder cancer, and Rocketdyne denied that my job could have given me the exposure.

I'd like to know how would you assess worker

exposure who was in that building in those years in light of the fact that that building is so contaminated that it has contaminated the ground water down to the bedrock?

MIKE LOPEZ: At this time, I don't think I could address your question about exposure, worker exposures during that time because I don't know the details of it. As far as I know, there is no radiological contamination of the ground water there.

SPEAKER: Under Building 59? You just said there was.

MIKE BROWN: Soil contamination. Soil was removed down to a level of 20 feet.

SPEAKER: I have a report at home that said the ground water was contaminated, and the ground water came back up and contaminated the building.

How would I get more information on that?

MIKE LOPEZ: On the contamination associated with the building?

SPEAKER: Well, why is that one of the last buildings to be removed?

MIKE LOPEZ: It's just the order of the decontamination and decommission.

SPEAKER: How can I find out more information?

MIKE LOPEZ: I will see if the survey report is

available.

VICKI ROSEN: Thank you.

LARRY BOWERMAN: (Inaudible) -- were observed. And the 30-foot deep reactor pit is -- the access to that is very difficult. There is no current exposures because nobody is getting anywhere near that reactor pit. At least as of this time, there are no current plans to demolish that building.

SPEAKER: Hi. My name is Christina Walsh. I sit on the board of directors for the West Hills Property Owners Association.

And my question is basically to ask the EPA for comment on the diagram shown where we have the green buildings and the red buildings. And does the EPA consider those buildings that were marked in green as fully remediated? And also, further characterization of those buildings that have not yet been cleaned up, what is left on those buildings? What are they? Are -- is that the former reactor that had some problems, shall we say?

Those are my questions.

JOHN BEACH: If I could defer the answer to that until I make my presentation, I will speak to some of these issues.

SPEAKER: Thank you.

SPEAKER: My name is Elizabeth (inaudible). A couple of questions for the Department of Energy, please.

I wanted to find out more about the reasons why these last three buildings are the last ones on your list. You say that the order of buildings is just how they fall in terms of the things that you prioritize. But were these left to the last. Is there any difference between these last three why you are taking more time? Why are we discussing these now? You decommissioned all of the other ones without the supervision. What is about these that got them to the end of your list, and why are we unable to do it until now? And a follow-up question too.

MIKE LOPEZ: Well, we started a number of years ago working with the State Department of Health Services and the EPA on the lease of the buildings. One of the facilities is still operational, and that is where we handle the radioactive waste that we do have. It's just a matter of completing the others that went before them. And there is nothing extraordinary about these buildings except one that is still operational.

SPEAKER: What about the building with the core, the reactor core that was being referenced earlier? Has that been decommissioned? Is that going to be cleaned?

MIKE LOPEZ: I'm sorry. The reactor core? The one Sheldon was referring to?

SHELDON PLOTKIN: That was a pit that they set the reactor in. They were testing the reactor. The reactor being there would contaminate things around it.

SPEAKER: Right. Has that building been cleaned?

MIKE LOPEZ: That building has been cleaned.

SPEAKER: With any oversight by the EPA?

MIKE LOPEZ: Yes. EPA did the survey.

SPEAKER: And how much longer is the radioactive materials handling facility going to be in operation?

MIKE LOPEZ: It will be in operation a few more years until we decontaminate the other facilities. And then that will be the last one we get to.

SPEAKER: Is the EPA overseeing your decontamination/decommissioning of the other buildings that you are working on besides the --

MIKE LOPEZ: They have actually already done the survey on Building 59.

SPEAKER: Are the standards going to be followed?

MIKE LOPEZ: We are following DOE/DHS standards on decontamination of buildings.

SPEAKER: Is the EPA overseeing the decontamination and decommissioning? Because, again, it always gets two different levels, acceptable levels, EPA versus DOE.

From what I understand, please correct me if I'm wrong, is that these other properties have been decontaminated and decommissioned based on the Department of Energy's standards and protocol, yeah?

MIKE LOPEZ: Yes. EPA does not have their own standards for the decontamination -- surface contamination of buildings.

JOHN BEACH: That is correct. And it is DOE's authority -- they have that authority to oversee that cleanup, and EPA does not.

SPEAKER: Would the EPA have different standards? If you guys were in charge, would you have different standards from what they apply?

JOHN BEACH: We would use a different approach. And -- so I guess that infers, yes, different standards. We approach things in a different way. We don't select a standard the way they do. And as I said, it's a different approach.

SPEAKER: I understand you start with the lower goal and work towards that.

JOHN BEACH: That's correct.

SPEAKER: So is the EPA going to have any oversight in the decontamination and decommissioning of these last buildings? Will the public have oversight and at least access to comment?

MIKE LOPEZ: I am sure the EPA will be involved in the release of the buildings.

SPEAKER: Hi. My name is Steve (inaudible). I'm the division director for Safety, Health, and Environmental Affairs at Boeing's Rocketdyne facility. I just wanted to respond to and appreciate Ms. Lee's comments from the city of Calabasas.

Boeing Company has done a lot of fracture mapping, geological mapping, fault line mapping. And because the site is so complex, if the Workgroup would like a briefing at either a special meeting or another meeting, we would certainly go forward and present that data. It's been built into the ground water characterization that we're working on with the regulatory agencies with the Department of Toxic Substances, et cetera. We have got a tremendous amount of data. We have surveyed several hundred wells with the GPS system. In fact, Rockwell Company, the previous owner of Rocketdyne, invented the GPS systems and built the satellites and put them into space. So we do utilize that technology. We have a lot of data. We spent millions and millions of dollars. We know what faults and fractures in the mapping looks like. If you would like to have a special Workgroup meeting to discuss that, we could set that up.

VICKI ROSEN: Thank you, Steve.

SPEAKER: My name is Tom Slauson. I'm a homeowner in Simi. A couple of quick questions.

You were talking about the contamination of the soil and how that was taken out. But what about the bedrock? Was any of that contaminated? Was the bedrock taken out and tested?

And the area -- the same for the sodium disposal facilities. Was the bedrock tested for any of that? You basically said soils were removed, and I'm just trying to find out how deeply you went down.

MIKE LOPEZ: We basically excavated down to bedrock. But perhaps Gerard could talk in greater detail since that activity was under his regulatory jurisdiction.

GERARD ABRAMS: Yeah. In fact, I'm going to talk a little bit about the remediation activity at the sodium burn pit, what was done there. The excavation of the soils were removed down into the -- through the weather bedrock into the more consolidated bedrock. And the bedrock was sampled following that excavation activity.

JONATHAN PARFREY: Gerard, was that true for all of the facilities and not just the sodium burn facility -- all the remediated facilities? We were talking about how many cubic yards of soil were removed, and we were

talking about the sodium burn pit and the bedrock there. But I think that the question was has other contaminated sites on the property, have they also -- has there been investigations as to removing soil that goes into the bedrock itself?

GERARD ABRAMS: Well, the burn pit was the last facility that we were involved with. And I've been on this project for four years. So I -- I can't talk about some of the other removal activities that occurred under the Water Board oversight and other agency oversights.

JONATHAN PARFREY: So perhaps DOE could answer that question.

If the soil was removed down to bedrock, what -- at other locations, did they go deeper than that? Since this area is seismically active, a lot of joints, fractures, whatever, and that's where the materials would have been moving along, were there tests taken along those areas as compared with the random tests within the consolidated bedrock?

The other question was kind of knowing that the design was of a critical facility, I imagine there wasn't a lot of damage to the buildings after the earthquake in 1994. But having done earthquake review in Simi and San Fernando and around, that doesn't mean that there wasn't an actual cracking or disturbance to

the earth. The buildings probably had nothing. Again, if there was going to be a reactor, I hope they were designed for earthquakes.

MIKE LOPEZ: As far as our removal actions, we removed all the waste that was above the release criteria, you know, for radiological facilities. For the chemical contamination, there is still some solid waste management units that are under Gerard's control, and they are still in process.

SPEAKER: But was there testing of the bedrock? Because you primarily said soils. I'm just trying to see if the bedrock was tested and removed also.

MIKE LOPEZ: We removed the soils.

MIKE BROWN: If I may. The general strategy in a D&D removal like this is you take samples to determine if there's contamination, take out the contaminated media, and then you go back and take another sample. So you are going down, and laterally.

So in the case of this particular removal action is you would go down to the point where you don't find anything anymore and that is where you stop. That is the approach taken. And my understanding is that in no cases did we get to the point where the bedrock was contaminated.

SPEAKER: Was there testing in the reactor pit that

was discussed earlier?

MIKE BROWN: That, I would have to go back and check. Steve, from Boeing, may know. But that's the general approach that is taken is you stop when you no longer exceed the regulatory limit. And then -- that's the general strategy for all of these types of removal actions.

SPEAKER: I just want to make sure I didn't misunderstand something with regards to the standards. Although EPA doesn't have authority over the site, my understanding is that we are using EPA standards based on the 1995 MOU. Is that correct, or did I misunderstand your responses?

MIKE BROWN: We are following DOE standards and they're consistent with the NRC standards. We are also working with EPA with respect to the strategy and the cleanup at the site. EPA is not setting standards for this cleanup.

SPEAKER: Do you know -- well, then, can you explain to me what was the purpose of the 1995 MOU?

MIKE LOPEZ: You are talking about the memo that was signed by EPA and --

SPEAKER: (Inaudible.)

MIKE LOPEZ: It required us to be consistent with CERCLA. And as we were discussing earlier, EPA does not

have their own standards for surface contamination of buildings.

SPEAKER: CERCLA EPA standards --

LARRY BOWERMAN: I think there may be a bit of confusion here. There are really two different kinds of standards. One would be for contamination in soils, that's what the 1995 agreement refers to in the 1995 policy. With regard to demolition of buildings, there is a separate standard that has to do with surface activity limits. And what we're talking about there is the EPA does not have separate standards for decontamination of building surface areas.

SPEAKER: So your responses were more in regards to demolition of buildings rather than soil?

LARRY BOWERMAN: Yes.

SPEAKER: Okay. Because my understanding is EPA standards would be used regardless of whether or not they're enforceable.

ARLENE KABEI: As it applies to soils?

SPEAKER: As it applies to soils.

VICKI ROSEN: We will take these next two people -- questions from the next two people. We are running a little over. Maybe we can shorten the next presentation. But perhaps we can finish with you people over there and then move on to the next presentation.

SPEAKER: I'm Laura Plotkin from State Senator Sheila Kuehl's office. I was just wondering if any of the EPA staff people were at the meeting at the California League of Conservation Voters leadership forum with Christine Whitman a couple of weeks ago? Were any of you there? Because the Senator asked about using the higher EPA standards for cleanup of radioactive material at the Rocketdyne site, specifically because she was concerned about the cleanup. And she got assurances that they would be used. So I'm kind of confused.

JOHN BEACH: As we indicated, none of us were at that meeting, so we can't speak to what was said there. However, we have stated that we would like to see the '95 MOU implemented and the CERCLA process be used to develop a remedy for the facility. We do recognize, however, that it is the Department of Energy's decision and authority to implement that or to exercise their authority under the Atomic Energy Act, which is what they are currently doing.

SPEAKER: Well, we would certainly hope that the higher standard could be used if at all possible. And I am sure that Senator Kuehl will probably have some kind of correspondence regarding the comments made.

VICKI ROSEN: We would like to find out more about

what was said and when. And if you could communicate with us -- or your office sometime soon, we would like to know the details of that.

SPEAKER: Okay.

JONATHAN PARFREY: Was there a transcript of that?

SPEAKER: I don't know if it was recorded or not. There were about, I guess, 30 people around a big table just talking about issues and asking questions. And that was a question that Senator Kuehl asked.

ARLENE KABEI: I just want to clarify that EPA is prepared to go forth with the survey that we believe needs to be done at the site. We're still awaiting some details on the DOE funding. Roger defined the process that his agency is going through to assure the funding for the site. But provided that that money comes in, we are -- we have been working with DOE on a work plan to get that survey going to initiate that survey according to the process that EPA would like to see happen. I -- there's no question about what EPA is prepared to do on this. I just want to make that clear. So Governor Whitman did not misspeak. And we are all on the same page with that. But there is a very real issue about funding that would support the EPA survey.

And just a little bit of clarification, as well. You referred to it as an EPA standard versus the

DOE standard, and EPA would want to clarify that.

We are not there yet about arguing our standard versus their standard. We are saying that there is a process and approach for investigating the site that will give us data upon which an appropriate EPA standard should be derived. Our standard, I will put it out there, could end up very similar to what the DOE has selected according to their own guidelines and their own policies. But EPA cannot -- we are not prepared to say we agree or disagree with that number until we go through this process. And we're prepared to go through the process.

SPEAKER: Well, we hope you will go through the process.

SHELDON PLOTKIN: I think we need to point out that there has been considerable discussion here regarding the standards you're talking about has to do with a risk that one is willing to tolerate. And the risk of that -- the EPA standard is ten to the minus six, one in a million, and you clean up to some level. Whereas DOE says we clean up to some level and that will produce a certain kind of risk.

Well, in many cases, it is ten to the minus six. And then in other cases, one extreme example that was presented was one in a hundred. And so that's where

the argument is. We, in the community, would like the safest possible, and there has been considerable argument here over that.

ARLENE KABEI: I am really sorry, but I need to clarify.

EPA does not have a ten to the minus six standard. We do have a process that starts at that lower risk level. But through a thorough site investigation, we go through the process of saying this is the appropriate risk level for this site and for its use in the future. Is that a ten to the minus six number or a ten to the minus five number or a four number?

DOE's number is within that range. It's coming out at a ten to minus four number. And they would say that that's --

SHELDON PLOTKIN: That's not true. Some of the risks are much lower than that, far lower. It's been presented to this group that way. And the ten to the minus four number you are talking about, you would have to present some pretty stringent rationale to justify going to the lower level. You have to show that the cost would be truly excessive for that particular situation, et cetera. The goal is ten to the minus six. And the minimum you can possibly accept is ten to the

minus four if all the rationale, et cetera, and behind them.

ARLENE KABEI: I agree with that.

SPEAKER: Well, we just look forward to the use of the highest standard. Thank you.

VICKI ROSEN: Next speaker, please.

SPEAKER: I will try to make this quick. I am Michael Collins from the L.A. Weekly and VCR Reporter in Ventura. I wanted to come back to Shell's comments about Building 59, the snap reactor.

I was fortunate enough to be able to attend a session watching people inspect that reactor. I was accompanied by Dan Beck and Phil Rutherford of Rocketdyne, who kindly allowed me onto the site to see this inspection.

I brought with me my own geiger counter, and we looked at test results of borings in the walls to see if my geiger counter would match Rocketdyne's geiger counters and EPA's geiger counters to see if it was accurate. And it was.

I noticed that 25-foot in diameter metal plate that you mentioned, Shell, and I noticed that there were no test markings on it. And I went and put my geiger counter next to it and it started to really hum. It was obviously very hot. I pointed this out to several of

the inspectors, who joked that, what, the L.A. Weekly is now doing the inspections? But I asked Dan Hirsch the significance of what I was finding. And he said the significance is that we're testing in the wrong spots.

So my question is fairly simple. If you did dig out the soil down to the bedrock and you removed the radioactive contaminants and the bedrock was not hot, why would the metal plate read hot? Was it because it was the old plate that was over the material before and it sort of soaked up the radiation? And if the plate was hot and it was clean underneath, does that mean something else? I am confused.

SHELDON PLOTKIN: It's a big hole under there. It's concrete lined. It's not dirt. There's not dirt under there. It's a big sunken concrete-lined area. And the reactor, then, is lower down. There is a big overhead crane to lower the reactor and anything else. Workers could easily be put on the -- for example, monitors easily be put on the platform, lowered down, do the monitoring down below, et cetera. It's not a big deal.

SPEAKER: My question is if that plate was hot, is that plate still there? If it's not there, where did it go? And what is the source of contam -- why is that plate hot? Why was it hot? And did it end up being

tested?

MIKE LOPEZ: The plate is still there. Now, not having been around when you were there with Phil and Dan Beck, I don't know the particulars of your visit. We could certainly have Phil at the next meeting or in some other forum respond to your comment. I just wanted to point out that -- to make it clear to everybody that the reactor is not there in the building now.

SPEAKER: Yes.

MIKE LOPEZ: Okay.

SPEAKER: And I just want to make one final comment. When we were standing there discussing what I had found, Phil said, you know, why don't we step away from this plate. And he said, you know, Michael, ALARA, which is an acronym for as low as reasonably achievable, meaning let's not stand on this plate. So, yes, I would appreciate if we could follow up on that.

SPEAKER: My name is Dave Einhorn, E-i-n-h-o-r-n. I was an employee of Tonix (phonetic) International in 1960. I am aware of a report that there was a partial meltdown in 1959 at the site.

Has that been investigated?

MIKE LOPEZ: Yes, it was investigated. And contrary to common opinion, it was -- notice of the incident was reported in the newspapers at the time.

There was partial melting of some of the fuel assemblies. The amount of radioactivity released to the environment was only five curies. It was diluted and, you know, and -- according to the current accepted practice. And the additional radiation was equivalent -- that went to the environment was equivalent to 15 seconds of background radiation.

SPEAKER: What happened at the site? When that went down, it went down, apparently, quite a ways.

So did anybody dig it up?

MIKE LOPEZ: It -- well, the facility has been removed. The radiation was all contained within the system.

SPEAKER: Where was it removed?

MIKE LOPEZ: Where was it shipped?

SPEAKER: Yes.

MIKE LOPEZ: That was before my time. I think maybe Hanford, and possibly Nevada. I would have to go back and look up the report. I don't recall exactly.

SPEAKER: The idea is you are taking radioactive material and -- and how is it shipped?

MIKE LOPEZ: I'm sorry. I don't have that readily available. That was a --

SPEAKER: Let me just guess it was probably trucked out of there on our streets and highways and it's

radioactive.

MIKE LOPEZ: But there are protections that are taken according to the -- you know, the Department of Transportation has their regulations and we have ours regarding the shipping of radioactive material.

SPEAKER: That's well and good, but it's not good enough.

VICKI ROSEN: Sir? Sir? This is a very interesting topic. I wonder if we could continue to talk about this issue later on in the evening when we have an open forum for extra topics. We are running very far behind already.

SPEAKER: Well, I just have a few more general items. They are very short.

VICKI ROSEN: Okay.

SPEAKER: Apparently -- well, my understanding is you get liquid sodium that's used in the reactors. You said that a great amount of the sodium was buried under about 10 to 12 feet of dirt; is that right?

MIKE LOPEZ: I'm not sure I referred to the amount of sodium. The facility was below surface level.

SPEAKER: Well, you said "sodium."

Well, anyway, my point is, again, it's got to be radioactive. And who knows what's going to happen over a period of time?

MIKE LOPEZ: Sir, none of that facility still remains at the site.

SPEAKER: I'm not talking about that. I'm talking about what you have buried under the ground.

MIKE LOPEZ: When the site was decontaminated and demolished, all of the radioactive material was removed at the time.

SPEAKER: Well, that's not what I heard.

The last thing I wanted to say is that apparently either Rocketdyne or Tonix International had a license by the City or County for runoff going down toward -- we used to have a dam down below.

And my question is was that water checked in terms of the radiation it would bring down from the hill to the dam?

MIKE LOPEZ: I'm sorry. I was talking to my coworker.

The question is what routine monitoring is done?

SPEAKER: I don't think you necessarily have to answer it. I think it probably would be over on this side as far as the Health Services.

MIKE LOPEZ: Whoever would like to.

Certainly, we do routine monitoring of surface water runoff.

SPEAKER: I'm talking about a license. I thought maybe they would want to address it.

STEVE HSU: My understanding of the radioactivity that was identified in the MPDES sampling, I guess -- the MPDES permit requires certain type of sampling and they identify mercury in that surface water runoff area. I need to consult with someone here.

So they identified mercury that probably came from the SRE facility, which was released back in 1983 or '85 by DOE. But then there was no mentioning of radioactivity being identified, only mercury. But then later on, they went in and then did some survey, Boeing did some survey of the area called north and west drainage area. They identified some areas that have residual cesium 137 contamination, and they then removed it and disposed -- put it in the radioactive waste containers stored in the radioactive handling facilities. That's where it stands as of now.

SPEAKER: I see. But mercury, you have to admit, is a dangerous thing to have coming down off the water.

STEVE HSU: That facility is -- currently the SRE mercury contaminated area is currently being overseen by DTSC, and we are working with DTSC and expect to receive a work plan which would include some sampling procedures or plan for that specific area. And

we're still waiting for that work plan to be submitted to DTSC. And then we will.

VICKI ROSEN: One more question.

SPEAKER: What are the acceptable levels for cleanup from, say, like the 1959 spill, the '73, as compared to what is being accepted now? I mean, if it was cleaned up by 1959 standards, what were the acceptable cleanup levels back then?

VICKI ROSEN: Is this something that you guys can answer quickly?

MIKE LOPEZ: I don't think so.

VICKI ROSEN: Okay. Who is the best one to answer this question? And should we defer this to another time? Or do you want to speak directly to this gentleman another time? How do you want to answer this?

MIKE LOPEZ: I will just make one quick remark.

It was in the mid-'80s that sodium was released as Steve talked about. And the building cleanup levels at that point were -- have been around for a number of years, for about 25 years.

SPEAKER: Are they more than today's or less than today's --

MIKE LOPEZ: Same as today's.

SPEAKER: That was in the '80s. But what about in the '60s or '59? Is that a -- was there a level back

then?

JONATHAN PARFREY: There was a cleanup of the partial meltdown in 1959.

MIKE LOPEZ: I'm sorry. I can't speak to that right now.

VICKI ROSEN: You are asking how thorough a cleanup; is that right?

SPEAKER: Absolutely. It would seem to be very important the level of cleanup back in '59.

VICKI ROSEN: So if we did it today, would it be better today than it was when we did it back then?

SPEAKER: Right. Or worse? Somebody must have some kind of data on how well it was cleaned up back then and to what level.

VICKI ROSEN: Is there anybody that can talk in greater detail about this?

MIKE BROWN: The point that Mike was making was there was a partial cleanup, and then the final cleanup was executed in the 1980s to the current standards.

SPEAKER: I understand that.

MIKE BROWN: So that it basically has been cleaned up although it may be in step function to existing standards.

VICKI ROSEN: Okay.

BARBARA JOHNSON: I have a quick question for Mike.

You were saying, Mr. Lopez, that when the meltdown occurred it was contained. On what do you base that? At that time there apparently were not the standards that there are today.

MIKE LOPEZ: It isn't an issue of standards. It's an issue of the data collected that documented what was released to the environment. And most of it was contained within the cooling system, I think it was. It was just a little bit of krypton and argon gas released in the environment.

VICKI ROSEN: Okay. We're going to go on to the next presentation. And as you can see, we are already way behind where we're supposed to be. I know these discussions are really interesting, and I hate to cut them off, but I really need to try and stay more to the schedule so we can cover everything tonight. So I am just going to ask your help to please keep your questions geared directly toward the presentation and hold the extra questions until a little bit later in the agenda. Thank you.

And now John Beach is going to present from EPA.

JOHN BEACH: Okay. Thank you.

I'm John Beach with the EPA. Some of my colleagues have already gone through a good deal of some

of the background stuff that's important for you to know, but I will give you an update of the EPA's activities since the last Workgroup meeting.

Since the last Workgroup meeting, our efforts have focused in three areas. One is providing comments on DOE's Environmental Assessment that Mike and Roger spoke of earlier. We have also done some work on building status surveys. I will speak to that a little bit. And also we have been working to move forward with our Area IV soil radiation survey. When I say "survey," I mean going out and taking measurements in the field and locations and that sort of thing.

The first item that we worked on was our comments on DOE's draft Environmental Assessment. You -- Mike has already told you about the number of buildings and that sort of thing.

DOE published the Environmental Assessment in January. And we provided comments in the formal comment period in April. And we shared those comments with members of the Workgroup. And copies are available if you want to have a look at those. But because of that, it's been a while, and I'm trying to make up some time here. I'll keep my comments brief in an overview.

As I stated -- as we stated before, EPA has a different process than the D&D process that DOE uses and

it's CERCLA process. CERCLA is the acronym for the SuperFund law and it's implementing regulations. We stated that we felt that that process should be implemented. We also commented that the scope, purpose, and context of the document wasn't really clear, and that the selection of the cleanup level is premature, as Arlene said, because the process had not been followed. And specifically, that the cleanup level selected was not consistent with CERCLA.

We also felt that the range of alternatives evaluated was inadequate and very incomplete and that we felt that an alternative that better represented the CERCLA remedy should have been evaluated. We also identified some procedural issues we identified under the National Environmental Policy Act, which is the law that describes how the Environmental Assessments are conducted.

The second major area of activity that we undertook was work on our building D&D survey confirmation work. Again, we spoke to that to a certain extent. We performed those surveys in responding -- we started in 1996 in response to community requests. And the purpose was to verify the previous surveys. Again, you know that several surveys had been performed and questions -- you have heard the questions that have

arisen about the accuracy of the surveys. If you look in the right places, were the measurements accurate? So that was the purpose of those surveys.

We originally committed to doing surveys of three buildings. We actually ended up redoing the documents on 11 buildings, and we actually did the survey work on eight of them. And the -- that was in two phases.

The status is -- well, I'm going to keep this brief because we can go on and on and it's really the subject of its own presentation and it's not quite ready to be -- we don't have all the words and everything is not complete. So we are going to be -- we are deferring detailed discussion of it until a later meeting when we will discuss it in detail. But the document review is complete. The field surveys are complete. And the reports are almost complete. And we do want you to know that through the whole course of everything, we tracked the results as they were coming in because we wanted to make sure if people were being exposed to unsafe levels of radioactivity, that we could intercede if that was appropriate. We did not need to do that. We did not find that.

We expect to send the -- our reports to the Workgroup in January, pretty soon here. That's next

month I guess. And as I said, we will discuss it in detail at a future meeting.

The third area that we were -- in which we were active is our Area IV survey. EPA committed to perform the survey several years ago. We had stated that previous surveys were not adequate to support a remedial decision when using the CERCLA process. We produced a scoping document to describe what we felt needed to be done, and that included the performance of the survey based on the methods that are described in the Multi-Agency Radiation Survey and Site Investigation Manual, called MARSSIM. That's a consensus document prepared by the Department of Energy and EPA along with the Department of Defense and the Nuclear Regulatory Commission.

The MARSSIM process, the process described in that manual, includes planning steps, historical site assessment, surveys, confirmation or verification of those surveys. As you have heard, we go back and resurvey things to make sure that we didn't miss something; that an independent review would find the same thing. There is analysis of the numbers, what do the numbers mean. And then there is the report preparation.

We're currently in the first two steps right

now. We are preparing to do the historical site assessment. That is part of the planning steps. And the historical site assessment is part of the planning for the rest of the surveys.

Some people have told us why not just go out and survey? We have read enough reports and heard enough people talking and we need to get out there and start measuring things.

Well, the reason for that is we need to plan and we need to know where we are going. Because if you don't know where you are going, you are liable to end up somewhere else. So we're in the process of planning this -- we are -- the historical site assessment, the HSA that we're proposing is needed to plan the survey. We need to properly design what we do when we go out in the field so we measure the right things. I can't tell you the number of times that good investigators have come to me with boxes and boxes of data and I looked at them and I have had to tell them that was good. But if you had thought about it beforehand, you would have gotten a little -- some more key information, some key information that would have made the decision process a lot easier and a lot more precise and certain.

So HSA asked what do we need to know -- or what we know and what we don't know; what decisions we

need to make; how those decisions will be made; and then what kind of information we need to make those decisions. So it's a formal process. It's essentially thinking it through real carefully so we can identify the right data to collect in our survey. We need to know what to look for, what radionuclides. There are a lot of different radionuclides to look for. We don't want to expend energy unnecessarily on things that probably aren't there. We want to focus on what's important. We need to think about where to look. We need to think about how certain we need to be. We can't be absolutely certain about the levels everywhere, so we want to make sure we know how certain we need to be and where the most likely places are to look.

It also goes to sensitivity. In order to support a decision criterion that starts at ten to the minus six, you have to measure certain levels. You can't always have those levels. You have to think about how sensitive you need to be so we can end up where we need to be.

So where are we in this process? We're working with DOE. We put together a draft statement of work so they can give us money and we can say we're going to do some work. The statement of work says what that is. The Department of Energy -- we will enter into

a mutual agreement with them so that they can fund us.

The draft statement of work will be circulated to Workgroup members. We were hoping to do it next week. It may be delayed a little bit. We have had some hang-ups. It will be soon. We will have comments from the Workgroup members; we will ask for that. And then once we can incorporate comments, we should be able to move forward with the survey and have it funded.

So that's about it for what we have done in the past several months. We have worked with the Workgroup on the procedures, and we have worked together. We submitted comments on the EPA. We worked on the building D&D, and we are working on moving forward with our Area IV survey.

So with that, I will open it up for questions.

VICKI ROSEN: Just a minute, John. Jonathan wanted to make some comments or ask some questions about the evaluation of the EPA.

JONATHAN PARFREY: I guess this is more of a question to DOE.

What is the timeline that you envision right now on the next iteration of the EA?

ROGER GEE: Now you wonder why I made that presentation about the focus group. Right now our headquarters have already started looking at it. What

the focus group will do at the 23 sites is gather information on the 23 sites, look at what's most important, and be an advocate for those 23 sites to get the attention of our headquarters to get something done.

Right now, since we were the first site visited, there are still other sites that we have that have to be assessed. Some of the things they will need to do is take a look at the whole picture in terms of all these sites and which ones need to have the most priority to get the most work done. So we are going through that process now. I am not trying to sidestep your question. It's only that I can't tell you that information because the process is still going on in which to assess that.

JONATHAN PARFREY: So the soonest would be three months from now?

ROGER GEE: That would be a better guess than what I would have. I don't know. And I don't want to pretend like I -- it's just I really don't know. That's why I went through the presentation for the focus group.

JONATHAN PARFREY: And is it your contention that the comments that this Workgroup put together and the DTSC comments and EPA's comments would be incorporated into the next draft of the EA -- or if they will be?

ROGER GEE: They're being considered because we had

an open-comment period. In fact, that was extended because it was the year-end, and we extended it an extra time so we could make sure everybody got their comments in. So those comments are part of a package now that is being reviewed.

And all I'm trying to explain now is there are more people looking at this than we originally intended. And it's not just about what's good for ETEC but what's good for all facilities across the country. It has another round, if you will, of people looking at it to see what is good for this country, which sites need to be cleaned up first, maybe which sites would have the greatest impact because -- just -- because ETEC is not necessarily the biggest site in the DOE complex, part of the problem that we've had when we brought things forward to our headquarters is that we need to perhaps get the attention that -- that a big site might get the attention. So this is a good thing for us to go through because it allows the small sites to actually have more of a voice in the nationwide community to get our needs addressed. So this is a good process for us to go through.

Unfortunately, getting to your question, I cannot project when this would be done. We would definitely request, and we're asking for it to be done

soon. Because, obviously, as John has shown on the slide, there has been some time that has elapsed.

JONATHAN PARFREY: And EPA has had some major issues with the EA. One of the major issues with the Environmental Assessment is that the way it was presented initially months ago by Mike Nothers is that doing an Environmental Assessment may come back and say, you know, we need to do a thorough Environmental Impact Report, that it's not sufficient.

Is there any possibility that the next draft of the EA will come back and say, you know what, we need to do a full environmental impact report?

MIKE LOPEZ: Yes, Jon. That is still in the loop because we have not made a decision, and that's one of the possible outcomes.

JONATHAN PARFREY: It's possible. Is it like a 50-50 chance or --

ROGER GEE: That one we would -- it would be hard to address. I think that would be clear conjecture. Just for -- when a federal agency -- I would be dishonest if I told you that I knew, because I don't.

But what a federal agency has to do is before it takes a major action, it needs to consider some of the alternatives. Since we're going through this, one possibility is, yes, DOE go ahead and do what you

initially planned. Another alternative is, no, you haven't done enough and you need go back and do something more extreme, more detailed. That's certainly a possibility. This is not a foregone conclusion. When we submit this to the headquarters, what will happen? I cannot answer that question because we are not the authority to make that decision. So please understand that.

JONATHAN PARFREY: I just would like to say that we don't think the environmental impact studies are necessarily extreme, but perhaps more thorough.

ROGER GEE: Definitely. With the State, there were actually fewer courses of action to analyze these. With the federal government, there is three alternative ways of doing it; with the State, there is two. So we need to be also fiscally responsible. And if this warrants more study, then we will be directed to do that.

MIKE BROWN: Perhaps also with respect to the release of the EA, we are looking at the January-February time period. We don't want this process to drag out for any longer than is absolutely necessary. We do need to get concurrence from our headquarters, but we want to move forward on cleanup. So we don't like the fact the EA is -- as a major decision-making document, has not moved forward. So

we're -- like I said, I may be going out on a limb, but January, February is maybe optimistic, but that is what we are thinking.

BARBARA JOHNSON: I would like to address Mr. Beach's comments that he made.

First of all, I would like to thank the EPA on the comments that they made on the EA. They are right on.

However, the comments that Mr. Beach made tonight regarding the planning of a survey looks to me like delaying tactics. We have been told for years and years that they're going to be doing a survey and that Greg Dempsey would be on this survey. We're tired of getting paper surveys and not getting a full survey done. Why aren't they out there doing soil samples? Why aren't they doing the survey instead of just giving us paperwork?

SHELDON PLOTKIN: I'll comment on that if I may.

Some of the history that the public may not be aware of is that way back, 10 or 12 years ago, a survey was done. And the community objected strenuously at that time, and everything that we had that Rocketdyne should not be doing the survey. The Department of Energy made the decision and arbitrarily decided to have Rocketdyne do the Area IV survey. Again, doing it with

their own documents and in their own way, et cetera. And it was -- that survey tells them where to clean up, you see, and by how much, et cetera. All this cleanup that's been going on all these years has been based on Rocketdyne's survey.

Years ago it was noted, and I don't want to go into the details, but it was agreed that that survey was inadequate. It's not that it was wrong, it was just inadequate and that it had to be redone. That is what the Area IV survey is about.

So here we're starting all over again to evaluate what has to be cleaned up in order to then go ahead and do the clean up, et cetera, while we're told that a lot of it has been cleaned up, 89 percent of something was already done, buildings have been released for unrestricted use, et cetera, et cetera, when we are still talking about doing a survey.

Okay. So then we get to the point where we are redoing the survey. It was promised that Greg Dempsey would be in charge -- well, first it was that he would be doing the work, it was his laboratory and he was going to be in charge of doing the work, et cetera. That's what we were promised. And this went on for several years with these various delays. Then we were finally told that he couldn't possibly do it.

Because of 9-11, he was too busy around the country and couldn't do it.

He was asked at one of these meetings, specifically, if he were allowed to select the team that did the work, he took -- it would be done under his leadership, but he would select the people that would actually do the work, and he would consult them, maybe periodically, and he would review the final document, and could that be worked into his schedule. And he thought for 15 -- 10 or 15 seconds, he didn't answer right off, but then he finally said "Yes." So that is what the community has asked for. We were promised that. We're willing to back off with him doing the actual work himself as long as he is in charge, not just the consultant, but in charge of the whole work. And instead of doing all of that, we are back doing this historical assessment.

Let me ask you, John, what documents in this historical assessment, whose documents are you going to use?

JOHN BEACH: We will be looking at all of the documents we can find.

SHELDON PLOTKIN: Namely Boeing's? The same ones they used originally?

JOHN BEACH: Well, to the extent that Boeing has

generated far and away the largest amount of documents for this facility, we will be reviewing those. But we will be also be seeking additional documents, as well.

Speaking to Greg's involvement. Greg's involvement has not changed. His statement that he will be involved in that way still stands.

SHELDON PLOTKIN: In charge of the work? In charge of the survey? Done under his responsibility?

JOHN BEACH: I can't guarantee you at this point.

SHELDON PLOTKIN: That's what we were promised, and that's what we've asked for. You know that.

JOHN BEACH: We know that, and you reiterate it all the time.

We will strive to achieve that. We may well be able to do that, Sheldon. And we will try. But I can't guarantee it today for you.

Also, as to why we need to look at the papers and plan. As I said, I can't tell you the number of times I have had good people do good surveys and bring them back and they missed stuff because they didn't plan. And if we just walked out of here and started doing surveys today, we would be back here in a year or two or something like that saying, you know, I wish we would have thought about this because we would have collected X, Y, and Z data and now --

SHELDON PLOTKIN: Have you talked to Greg about this? Because he is pretty much aware of all those things. He came up with a plan on exactly how that survey should be done, et cetera. And the only question was how many samples and, you know, and what the depth should be for digging the samples and how many.

JOHN BEACH: Okay. Greg was involved with our scoping document and the scoping of the historical site assessment and concurs that that's the appropriate approach to be taken.

JONATHAN PARFREY: May I ask, just very briefly?

JOHN BEACH: Sure.

JONATHAN PARFREY: How forthcoming has DOE been with all the documents and Boeing been with the old Atomics International documents related to the site?

JOHN BEACH: We are not in the HSA process yet. That's part of our process. So we will be able to tell you when we get there.

JONATHAN PARFREY: All right.

VICKI ROSEN: Okay. We're behind, so I'm going to make a couple of propositions. If you have questions of EPA, we can do a couple of things. You can ask them now, or we can wait and get to the DTSC presentations, which are pretty thorough and they deal with perchlorate, which has been in the news lately. And

then you can just combine questions of them with questions of EPA if that would work for everybody.

We could also take a little bit shorter break or no break at all depending on what you want to do.

So does anybody have any feelings about this one way or the other?

SPEAKER: No break.

SPEAKER: Move on. No break.

VICKI ROSEN: Would everybody be amenable to moving on? Well, I tell you what. We are going to take a really short break and call everyone back in in seven minutes.

(Brief recess taken.)

GERARD ABRAMS: The purpose of my talk is to talk about the status and discuss the status of the investigation work out at the Santa Susana Field Lab. I'll do that first, and then I'm going to finish up with the information on the perchlorate that's been collected.

Ultimately, the purpose of the investigation is to clean up the site. And to do this, we need to understand where the contamination is, where it's going, does it present any risk. And once we know that, we can make decisions on how to clean it up. To understand where it's going, we focused our activities on four main

areas. One is the soil, the soils out at Rocketdyne. We are also focusing on the shallow ground water, the deep ground water, and the deep bedrock. And, lastly, on the geology and stratigraphy of the Santa Susana Field Lab. As you can see from the photograph, the facility sits atop bedrock. So the sandstone and the shale stratigraphy very much controls how the contaminants are going to move in the subsurface.

Before I talk about the investigation work, I wanted to give some background on the Santa Susana field lab. I think most people know, Santa Susana was used for rocket testing engines and development from the late 1940s.

In the photo up on the screen in the foreground, you can see the Department of Energy ETEC area, which was used for reactor research area and energy-related research, as well.

At Santa Susana, one of the major sources of contamination resulted from engine testing. In the old days following the engine test, they used to flush the engines with the trichloroethylene. And the trichloroethylene, after each flush, was allowed to run down the rock spillways and into the bedrock material.

So at Rocketdyne, then, the contamination is -- the ground water contamination is associated with

the rocket test areas and also where they were handling a lot of chemicals, usually around the support labs and the support buildings and the chemical storage areas.

The practice of flushing the engines was discontinued in the late 1960s. After the 1960s, I believe they recycled the trichloroethylene and they no longer use that practice today.

What I wanted to show you with this photo was as I had mentioned, the highest -- the ground water contamination out at Rocketdyne and the contamination is associated with chemical use areas. And so this photo shows the eastern portion of the Santa Susana Field Lab. And if you look at the photo, you can see -- let me see if I can point it out for you here -- along here is the Area I road. And this area in particular, there were a number of chemical buildings and chemical use areas, as well as some of the older rocket testing done in these areas here and here. And so at Rocketdyne, we find the highest contamination is located along this Area I road. There is also a very high -- a fairly high contamination of the ground water, solvents in the ground water associated with these test stands in this area, and also here and here.

As long as I have got this slide up, since we will talking about perchlorate, later, Rocketdyne tested

liquid fuel engines. And perchlorate is an oxidizer associated with solid propellants. At Rocketdyne, they were using the perchlorate with a program that was located over in this portion of the facility. In fact, they were storing the perchlorate in this area here, in Building 357. And they were using a -- some of their energetics testing where they would fire projectiles into targets in this area here. So we find a fair amount of perchlorate in the ground water in this area. And the highest contaminated areas that we find, in the wells anyway, are associated near the storage area for perchlorate. And that's roughly this area. And the highest concentrations were between 600 and 700 parts per billion in one of the wells in that area.

There is also perchlorate in the soils in this area. And we're finding that generally in the shallow wells, and the deep wells in this area, as well.

There are two other areas in the Rocketdyne site where perchlorate has been detected in the ground water. The other area is over in the former sodium disposal facility. There were some questions and discussions about this a little earlier this evening. But the former sodium disposal facility is located here. Two years ago there was a remediation of the soils in this area.

There are 22 wells around -- in and around the sodium disposal facility. The well right here, RD 21, has 3.7 parts per billion perchlorate, and there's a well in the center, RD 50, that has 5.5 parts per billion perchlorate.

There are also a number of surface water discharge areas that are monitored by the Water Board under their permit system which are monitored for perchlorate. My understanding is that they don't detect perchlorate in those surface discharge.

There is one other location in this area near Compound A where there is a shallow well that is 30 feet deep that has -- detects perchlorate in the nine parts per billion range, though there are quite a number of other wells that have no reported perchlorate.

As mentioned, one of the main sources for contamination at Rocketdyne are the rocket test stands. This photo shows one of the test stands. This one in particular actually was used to test the space shuttle engine, main engines. But, again, in the early days of Rocketdyne following each rocket test, the engines were flushed with trichloroethylene and that was allowed to spill down spillways like this and into the subsurface.

I believe NASA did a report many years back to try and get an estimate of how much TCE may have been

released into the subsurface. They calculated that close to a million gallons of TCE was flushed through the rocket engines during the history of the programs out there. And they estimate that about half of that they figure went down into the subsurface.

The next couple of slides I am going to talk about the investigation work itself. The first couple of slides deal with the soils investigation. I will show some slides regarding the shallow ground water investigation and then talk about the ground water and bedrock investigation out at Rocketdyne.

There is a number of sampling techniques that we use to investigate soils near the bedrock material at Rocketdyne. One of them is trenching. In a facility as old as Rocketdyne, there has been a lot of activities. And there has been a lot of, you know, a lot of history and a lot of dirt removed. So trenching is a way for us to get a pretty good look at the subsurface to see if there are some areas that have been backfilled. Occasionally you can see, you know, staining or just other visual indications of what some of the past history might be. And it helps us to direct where we want to collect our samples.

Other sampling techniques for collecting the data deals with the use of drill rigs. And this is a

drill rig we can drill down to various depths and collect samples.

One of the really useful sampling techniques that we use at Rocketdyne is soil gas sampling. And the majority of the chemicals released are volatile chemicals associated with, you know, the test stands and the chem buildings and stuff like that. What that means is that that stuff is spilled into the subsurface. It moves down into the soils and is there. But it's also volatile. So the volatiles move off away from the actual spill area into the pores of the soil. And soil gas sampling is a really excellent way for finding contamination in the subsurface for volatile compounds.

This photo shows the colored tubes -- the colored tubes sticking out of the ground are probes, soil gas probes. And how they're installed is they're -- usually you drill a hole to your target depth and you install the sample end of the soil gas probe, which is -- looks pretty much like the bubbler on an aquarium, and there's a plastic tube that's run up to the surface, and you can install these things at various depths, and then you put a vacuum on the tube and you suck out the soil gas and you measure it.

There is also -- not only are we concerned about the human risk related to the contaminants at

Rocketdyne, but we also -- part of this investigation work evaluates the ecological risk, as well. So there has also been sampling of biotic specimens, invertebrates, plant material, and an ecologic risk assessment is also being conducted out at Rocketdyne.

This photo shows some samples that are collected in one of the ponds at Rocketdyne from the pond's sediments on the bottom.

I wanted to show you an example of some of the data that has been collected. As I mentioned, along the Area I road there was quite a lot of solvent handling and use. And so I want to show you some of the data from the instrument equipment lab located in this area. This whole area is one of the -- has one of the highest ground water contamination -- contaminated areas on the hill. Let me just show you what some of the data looks like.

This is a soil gas survey collected around the instrument equipment lab buildings. This road right here is the Area I road. And there was chemicals used in this area. And these black dots are soil gas probe locations that were installed to various depths. The blue lines are iso-concentration contour lines and they sort of delimit the -- the soil gas concentrations in the subsurface. So I don't know if you can read it from

where you folks are, but the concentrations in some of these probes are up to 6,000 and 7,000 parts per billion at various depths. So pretty high concentrations of the soil gas. So it kind of gives you an idea of the levels that we see in some of these very heavily -- areas where the chemicals were heavily used.

There was a core that was drilled into the subsurface to a depth of -- about 600 feet located right in this area, and the cores were analyzed. I will talk about this part of the program in a little bit. But contamination was found down to about 500 feet in this area. The Area I road that I was showing, it's over on the Chatsworth side of the hill.

The next slide is -- I just wanted to use this as an illustration of how the investigation might -- has been proceeding.

This is an area called the LOX plant, and that stands for liquid oxygen, and it's located in Area II. The plant has been removed. And there's a number of wells in the area, and there's a plume of solvents in the subsurface in the ground water. And one of the source areas was initially thought to have been this clarifier sump where the chemicals were used and disposed. And -- but there was a fair amount of sampling done. It didn't really seem to indicate the

levels that we thought might be responsible for the ground water contamination. As part of the investigation of this area, a grid was laid out on 50-foot centers and soil gas probes installed at these center locations. What we found was that there was pretty high levels of soil gas up in this area located -- here is where the old plant used to be. It's not there any longer. So they must have been using solvents in this area. We're going to go back here in the spring and follow up with some investigation work to the north.

This is what the LOX plant looks like. This is the flat area where the plant was located. This was where the clarifying sump was located. And the elevated soil gas was just out of the photo view over on this side here. But you can see that, you know, it doesn't look like much here today. You wouldn't know there was significant contamination unless you had sampled it.

Another thing I wanted to talk about was the shallow ground water investigation done at Rocketdyne. One of the things that we were concerned about was how does the shallow ground water move and which direction does it move. We know that there are source areas where there is contamination following rain events, the rain goes down into the soil and to the subsurface. Does it

hit the bedrock and just go straight down or does it move along the bedrock laterally in some direction and then move down? Well, we really need to understand how the shallow ground water was moving out at Rocketdyne. And so prior to last winter, there was quite an extensive phase of work to investigate the shallow ground water. And it consisted of sampling -- or installing about 160 shallow wells. It involved quite a lot of work. There -- these wells just weren't installed helter-skelter. There was a lot of drilling and cores collected. The cores were looked at to decide at what depth to set the wells. Some of the wells are multicompletion wells. Many of the holes were geophysically logged to see where the water was, and we looked at the core to see where the fractures were and that sort of thing.

This map, although it's not too clear, I couldn't really get a clear copy of this into my PowerPoint show here, but what it's showing is these blue dots in this area and there's -- there's quite a number of blue dots through this whole area in here showing where the shallow wells were installed. They were monitored through last winner for water level data and also sampled for chemical concentrations, as well.

And so in this little cluster right here is an

example of what this data looks like. There is about seven piezometers in there -- the shallow wells, and their well IDs are here. But the point of the slide is that the rain began in January of this past year, and these are the rain events. You can see how the water levels rose in the shallow wells and how it --

SPEAKER: Was that 2001 or 2002?

GERARD ABRAMS: 2001.

The point is that when you know water level data in these wells -- water flows from high level to low level. So if you projected these back on the map, you can see where the water is, which direction water is flowing, and you would know where your shallow ground water is flowing.

I wanted to talk about the investigation of deep ground water and the bedrock down at Santa Susana. The investigation of the deep ground water presents quite a number of challenges for us. At Santa Susana, there's been a number of innovative technologies that have been applied to do this characterization. Just to put it into perspective, we attended an international conference earlier this year where there were presentations from all over the country, as well as some international presenters. And, you know, I was surprised that some of the -- you know, compared to

what's going on at Santa Susana Field Lab in terms of the technologies that are applied, this site is far and above what's going on elsewhere around the country. To give you an example, as of about seven years ago, I don't think it was possible to drill into sandstone and collect samples and analyse those samples for volatile compounds. When you crushed the rock, the chemicals would volatilize off. They would be gone before you could analyze them. The pilot holes, there was -- this technology was refined a couple of years ago in 1998 where two pilot holes were drilled into the sandstone and samples of bedrock collected with quite a bit of success. So that technique has been refined now to where the detection limits for the solvents are down to a part per billion.

This is one of the core holes that are being drilled near one of the test stands. This is along Area I road. This is the canyon -- the bowl test stand. We began this phase of work a couple of years ago into the bedrock and the ground water. It involves drilling core holes through source areas, and this is one of those core holes being drilled.

This particular core hole was drilled over in the former sodium disposal facility. Someone had asked if we had done any work into the bedrock in this area,

and a core hole was drilled down to a depth of 450 feet.

Anyway, the core is continuously cored. It's pulled out. The core is logged for the lithologic information. But this technician here is collecting the subcore samples along the length of the core, and they are collected about every 12 to 24 inches through the entire length of the core hole. So these wood blocks show where the samples were collected. Those subcores are taken over to this device. They're crushed in a sealed -- in a hermetically sealed device and immediately immersed in methanol, and then the core material can be analyzed.

What that data looks like, then, is something like this. So here you can see this particular core hole was drilled from zero down to 350 feet, and that's the depth of the core hole. You can see that information on the right-hand side. And then about 75 feet at depth, there's pretty high concentrations in the core, in the bedrock material, on down to a depth of about 275 feet for the drop-off.

So this gives some really valuable information on how the contaminants are distributed in the subsurface. And if we're to get a handle on how to clean up the site and where the contaminants are in the subsurface, this is the type of information we need to

collect. And this is what we are doing right now.

Another part of this whole investigation phase that's going on is once these core holes are drilled, they are retrofitted with sampling devices, wells, but these are multicore sampling devices. Here is an example of an existing well at Rocketdyne that has been retrofitted with one of these sampling devices. Whereas before the well is drilled down into the bedrock and a pump is put down in it and water samples are pulled out of the well and what you get is a blended concentration of the contamination and we are not really sure where the contamination was in the subsurface. But with these retrofits that are going on at Rocketdyne, we get some very good information. Each one of these yellow dots is a port, and we collect water samples from each one.

So here you see the upper ports that didn't have the contaminants, but well No. 5 did. So we really get a refinement of what's going on in the subsurface. We put this together with the rock core data and we also, at the same time, are doing pumping tests in nearby wells where each of these ports has transducers hooked up and can measure pressure changes in the water level. And all that means is it gives us a -- very good information on how water is moving in the subsurface in a three-dimensional sense.

Also, there is the shelf beds. When you overlay the geology out here, you know, there is the sandstone beds that are fractured and the shelf beds that are also fractured, but we see dramatic changes as we cross these. There are clearly pressure differentials in these shelf units. So some of them are interconnected and some of them aren't. So we really need to understand what's going on three dimensionally at Rocketdyne in terms of the ground water.

This photo shows one of the wells out at the sodium disposal pit area. There is 10 wells that are being retrofitted with these -- the deep wells are being retrofitted with these multicore sampling devices. The northeast area was completed earlier this year, and also samples. So that sample data from those cores is available for review. And we should be getting a hydrogeologic report on the northeast area in a couple of months.

This is what some of the sampling tubes look like in one of these retrofitted wells. The clear tubed are where you collect the water samples down to the various depths. The yellow ones are the transducers that measure water level.

In the course of this investigation that's been going on, one of our main concerns is -- are people

being exposed. Are there areas at Rocketdyne that present an immediate risk to folks out there or maybe moving off site and exposing just the environment or create exposure problems? One of those areas was the former sodium disposal facility located in Area IV. This was an area that treated sodium metal, but there was PCBs and dioxins in the soils in this area, and it had also moved quite a distance -- quite a distance down drainage. So every winter it was probably moving further and further into the environment. And we have the option, we felt it was important to move forward in this area to, even though we're not finished with the overall site investigation, to locate -- isolate some of these areas and clean them up where we see there's, you know, immediate risk. And this was one of them.

SPEAKER: What area is Area IV located in as far as community? Is it Simi Valley? Is it West Hills? Where is it located approximately?

GERARD ABRAMS: Area IV is located at the west side of the Rocketdyne facility. So the drainages that are close to Area IV -- maybe I should go back to that aerial map and I can show you. But it would be Meier Canyon would be one of the canyons that eventually drains down into Simi Valley. In fact, I've got another map that I will be getting to shortly and I can show

that.

JOHN BEACH: It is at the top of the hill though, right?

GERARD ABRAMS: Yes. The sodium disposal facility is on the Rocketdyne facility at the top of the hill.

JOHN BEACH: Right.

GERARD ABRAMS: This is what the sodium disposal facility looked like before the cleanup. There was actually an earlier cleanup activity that occurred here, you can see that in the lower portion of the photo, and that was done in 1993 under the Water Board oversight. But the upper part is what's called an impoundment, and that's where, you know, these solvents and whatever were disposed or placed. There's soils up here that were impacted with PCBs and dioxins, and so this material was excavated. This is what it looked like before the excavation.

This is the -- the soils are being excavated. This photo is the edge of the upper impoundment area. Soils are being removed.

SPEAKER: How large is the burn pit in area?

GERARD ABRAMS: It's about five or six acres.

Also, the impacted soils in the drainages below the sodium burn pit were cleaned up, as well. Here you can see the crews are removing the soils from

the soils from the drainages below. They're loaded -- they put these soils into the big -- into big half-ton bags that were helicoptered out to the bins before it was transported off site.

This photo shows the excavation down through the weathered bedrock into even more consolidated bedrock. Here you can see the soil profile. So the thickness of the soils was two to three feet, and in some cases maybe five feet thick in some areas. But the excavation continued on down through this weathered bedrock down to the more consolidated bedrock.

This is following excavation down to the bedrock. And for -- these are the guys holding vacuum hoses here. So these are three workers down here, so it gives you a sense as to the size of the excavation area. These are pump trucks. The soils and everything was excavated with excavators. But there was, you know, a lot of residual material that you can't quite get to with a backhoe, so these guys went in with the vacuum trucks to vacuum up the loose debris.

This is a slide showing the -- following the excavation. The area was backfilled with low permeability cover material. This is the installation of that cover. The guy with the truck is testing the density. The backfill cover was in place to engineered

specifications for density and compaction.

This photo shows the final covering in place and the straw matting before it was reseeded with some of the trees. The trees were planted in the cover material, the background of the cover.

Also, there's a number of monitoring devices in the cover. There are moisture probes that are set at various depths in the cover. There are a number of piezometers to monitor the performance. The moisture probe data are connected to this device here, which records moisture data every hour on the hour, 24 hours a day, 365 days a year. So during the wintertime rain events, we get a pretty good idea of how the cover is performing.

Next I wanted to talk about the perchlorate data. This shows one of our geologists walking down one of the drainages below Rocketdyne. Some of these areas where we went and sampled the springs were pretty hard to get to and took a better part of a day. Many of them were through canyons pretty thick with poison oak and lots of ticks. I'm going to have to change graphics here to go to the big perchlorate map. So give me a few minutes.

This map shows the recent perchlorate data that we collected. Before I begin on this map, I want

to emphasize that there are no drinking water supplies in Simi Valley that have been affected by perchlorate. There are two water supply wells in Simi Valley located in this area right here, and those are sampled routinely as required by law for perchlorate. Nobody is drinking water with perchlorate; nobody is being exposed.

BARBARA JOHNSON: Has there been in the past any of these wells used for drinking water?

GERARD ABRAMS: Barbara, the only two wells in Simi Valley that are used for water supply are these two wells, and they report -- there is no detected perchlorate.

SPEAKER: Can you tell us where the wells are? Is that the Sycamore well or the No. 3 or is that (inaudible).

GERARD ABRAMS: Do you see this part of the map right here? There's two little dots. Those are where the two water supply wells are. They're separate wells. They supply about 20 percent of the water to residents in Simi Valley. The rest of the water that is supplied to residents in Simi Valley is imported from central California.

A little background on the history of this perchlorate sampling effort. In 1999 -- well, let me explain a couple of things here.

In the western part of the city and this area, there is high water. And the City has installed a couple of wells in those areas to alleviate that high water that is coming up into people's yards -- in this area right here. And also, there is some dewatering wells located -- there are about six deep wells in this area, a couple hundred feet deep, and they draw water out from the ground water to keep the water table low. And there is a number of wells in this area here.

And so the City had sampled one of these wells -- actually it was -- well, it was right in here, and they got a slight detect of perchlorate.

SPEAKER: (Inaudible.)

GERARD ABRAMS: This one, SA-2, I believe it is. They asked the EPA to resample the well. To make a long story short, we resampled it also. And before we did, we asked the City if there were other wells in the area that we could also access because we wanted to see if there might be a source that we could track it back to or at least get some better information on the area.

We didn't find -- we weren't able to repeat the detecting of the perchlorate in the original well. It was less than 2.5 parts per billion. So if it's there, it's just below the detection limit. But we did get a detect in one of the other wells of about -- well,

we sampled it a couple of times. The first time we got seven. I think up here on the map it shows nine parts per billion.

So of the 11 wells that we sampled in that area, one of the wells, the one with the nine parts per billion with the detect for perchlorate, there were also some samples, some wells in the same location -- actually, it's a nested well cluster -- we didn't detect perchlorate at around 80 feet in that well, nor at the 25-foot depth as well. We detected perchlorate at 50 feet.

Anyway, we talked with the City, and there were some additional wells that we were able to access. And we also talked with the Water Board and they identified some wells that we could also access. At the same time, we were going to the County and trying to check their records to see if there were any individual drinking water supply wells that we could sample or just wells in the undeveloped area below Rocketdyne because our focus here was, you know, we are concerned about the contaminants at Rocketdyne, and we were trying to get an understanding if there had been a release from the Rocketdyne facility. So we really wanted to see if we could find some wells between the Rocketdyne facility and Simi Valley.

But anyway, we ended up sampling -- well, the Water Board has access -- they oversee gas stations and other areas where there are monitoring wells in Simi Valley. So there is quite a number of gas station monitoring wells that are located around Simi Valley. So we sampled -- well, actually, the Water Board collected the samples for us, and we ran the samples at our lab. We also were wondering if maybe there was a release from Rocketdyne. If it were a surface release, did it go down the drainages, the surface drainages. So as part of this work, then, we went up the canyons and drainages below Rocketdyne and collected quite a number of samples, soil samples and analyzed them for perchlorate. We got a slight detect near Meier Canyon. But we went back and collected several, over 100 pounds of soil in that same sample location and we weren't able to duplicate that detect in that location. So --

SPEAKER: Those are soil samples from the surface?

GERARD ABRAMS: Yeah. They are soil samples. That's because what we were interested in understanding was has there been a surface release from Rocketdyne. Let's say, from the sodium burn pit, did it go down one of these drainages. So we went up these drainages and collected samples. We weren't able to duplicate it with about 100 pounds of soil sample, so it's not there.

SPEAKER: What was your conclusion?

GERARD ABRAMS: Let me finish up.

So we collected samples at the canyons, and we didn't get any detects. We couldn't repeat the one detect that we found here. We also, as part of the overall ground water investigation out at Santa Susana, requested that the seeps and springs below Rocketdyne be mapped, and that part of the effort was conducted about two years ago. So this past spring we went back to these springs and there are some old ag wells, as well, and we sampled those, as well. So we didn't get any detects in that -- in those springs and ag wells that were sampled in that area.

So what we have then is we found of these roughly 60 or so shallow gas station wells and then some of these dewatering wells that are owned by the City, we got 15 wells that had detects of perchlorate, and it's roughly scattered throughout the City.

So based on our collection effort, then, we weren't able to find any detects of perchlorate in the drainages below Rocketdyne. And so we haven't made a connection with the perchlorate that's found in these wells down here to the activities out at Rocketdyne.

SPEAKER: Would you expect to find perchlorate still in the soil after they cleaned it?

GERARD ABRAMS: I think you would. If there was heavy use of perchlorate and it was released into the soil, to the extent that it has impacted ground water, you know, it -- it would still be in the soil. It wouldn't flush out so thoroughly I wouldn't think. I can see no indication of it whatsoever.

SHELDON PLOTKIN: Until after Professor Tabidian gives his presentation, I think a lot of your questions will be answered.

GERARD ABRAMS: Yeah. So, you know, I don't see -- you know, we talked about it when we started our team. And if a surface release was the source of perchlorate down in Simi Valley, and that valley is about 10 miles across and a couple miles wide, so over a wide area, then there would have had to have been an awful lot of perchlorate that moved down one of those drainages. And it's not there today. So, you know, I don't how you could impact such a wide area and not see indications of it still present in the soil. I just don't see how that can be.

VICKI ROSEN: Excuse me, but let's not get into the question-and-answer period yet because we have another presenter who is going to be talking on this subject, and then we'll open up the floor to everybody because I think it will be important for you to hear him, as well.

GERARD ABRAMS: That pretty much wraps up my presentation.

VICKI ROSEN: Thank you, Gerard.

We have Dr. Ali Tabidian, who is a hydrogeologist from Cal State Northridge. And Dan Hirsh, who is a member of our work group, who is not able to be here tonight, had asked if Dr. Tabidian could talk about perchlorate.

We are glad to have you here. Thank you.

ALI TABIDIAN: This is a little bit short notice for the extent of my presentation, but I will try my best. I do have a little bit of an accent, by the way, coming from Nebraska. So if you want me to spell a word for you, please let me know.

I have been teaching at Cal State Northridge since 1988, teaching hydrogeology and environmental geology classes. Actually, since 1988, I have been coming to these meetings. I supervise two (inaudible) hydrology and hydrogeology of Simi Valley. One of them on an ongoing source for pollution, and the second one is specifically on hydrogeology of Simi Valley.

I would like to acknowledge the help and cooperation of a number of agencies. I think going through the past three or four years they have been doing some decent scientific work, contrary to previous

years. And I think ultimately we are going to lead to some good conclusions and understanding of hydrogeology of the area. During the past 14 years, actually, I have learned about American democracy through these meetings. It has been very interesting to look at all sides.

So anyways, let me move on.

Here, on this picture, I'm trying to show the four areas within the Santa Susana Field Laboratory showing the drainage basin that actually could potentially collect a lot of water from the Santa Susana Field Laboratory. So those blue colored lines that you see basically indicates that potentially they could receive surface runoff that would include Meier Canyon, for example, and -- and a few unnamed canyons around the area.

I would like to mention Area I you will find the highest concentration of perchlorate. These are some of the specific numbers of perchlorate concentration in Area I, and I should mention you will find concentrations of close to 700 parts per billion. So, again, these samples are all related to the Area I.

The next slide shows the concentration of perchlorate in Areas III and IV. As you see here, again, these concentrations are very low compared to Area I. Most of them are comparable to Area IV,

actually. The Ahmanson Ranch concentration, as you see, has the highest concentration that has been detected off site, and that is something that has basically puzzled everybody.

Here are the concentrations that has been -- have been detected in valley floor wells. Again, the highest concentrations, as you see, again, goes up to about 20 parts per billion.

SPEAKER: Is that the San Fernando Valley or Simi Valley?

ALI TABIDIAN: These are all Simi Valley floor.

Possible sources of perchlorate in Simi's ground water reservoirs, and I'm sure that you have all read about the possible sources, fireworks. One thing that hasn't been mentioned as far as I know and nobody knows anything about it is that about 1,000 movies and TV shows are being made on eastern end of Simi Valley and on north central Tapo Canyon. Okay. And the question is many of those movies I understand they were western movies. In any western movie, the people, they shoot each other, and they kill each other. So I don't know what type of components they used if there were any type of explosives, any type of fire, that is something that I don't know anything about. That would be something to do some research on.

Imported fertilizer material. Again, I'm sure you have heard about this. From Chile, that is the place that actually naturally percolate has formed and those materials has been imported to the U.S., is being used at different locations.

Over here, the local airport. There used to be a little airport here. Again, the shipment of the materials and the storage of the materials, that's a possibility. The full extent of what they did at that airport, I don't know anything about it.

Imported Colorado River water. Again, that is something that has been mentioned. I have heard about it, you have read about it. I think that the concentration that you find in the imported Colorado water about three, four parts per billion. I could be wrong about that, but I think --

SPEAKER: Four to nine.

ALI TABIDIAN: Four to nine. Okay.

There are a couple -- or a few location of dumps on old maps that these dumps are sitting on Simi Valley floor. Obviously, they could be potential sources. On old maps you do find location of natural waste lagoons and sewage lagoons. Okay.

So these are water sources that you know of, you heard of, possible sources for perchlorate in Simi.

Now, as far as fireworks goes, I don't know if somebody did something, for example, in Ojai, would you find perchlorate out there? Obviously, that would be an easy thing to do. And if nobody finds perchlorate in Ojai water sources, maybe fireworks is not a source of perchlorate in Simi Valley.

Movie making and the explosive-type usage. Again, I don't know about that. I can't talk about that.

Imported fertilizer material. U.S. EPA, they have done some work, and they basically have ruled out as far as percolate in ground water is from fertilizers in Simi Valley.

Let's see. Imported Colorado River water. If I show you -- if I can show you on a picture here that -- basically from early 1900s to about the '60s, the early '60s, Simi Valley was an agricultural type community. They were totally dependent on water delivery.

SPEAKER: Can you show us on the map where the Ahmanson detect was?

ALI TABIDIAN: Ahmanson Ranch is south of the Santa Susana laboratory. I can't point in the specific area on this map, but it's roughly down -- somewhere around here.

SPEAKER: Wasn't it the east Las Virgenes watershed area there?

ALI TABIDIAN: Exactly. Exactly. Actually, that is where I -- I didn't think that I would have enough time to explain the details on these maps, but Las Virgenes is basically --

SPEAKER: Can you point that out where the Ahmanson Ranch is?

ALI TABIDIAN: It's about two and a half to three miles south of Santa Susana Field Laboratory. That is where the Ahmanson Ranch is located and where they found the perchlorate concentration.

SPEAKER: Dr. Tabidian had indicated that the well was right here, and that's incorrect. That is actually at the property boundary. That is Bell Canyon. Ahmanson Ranch is about two miles down here.

ALI TABIDIAN: Can I borrow this?

Here is the Las Virgenes water drainage basin and the Santa Susana Field Laboratory. And like I said, that well is located in Las Virgenes drainage basin. Okay. It's not in Bell Canyon or anything like that.

SHELDON PLOTKIN: Is there a connection between Area I with the blue lines going down into Ahmanson?

ALI TABIDIAN: You see that Bell Creek, the headwaters of Bell Creek starts from Area I and it goes

down here. So that is the Bell Creek drainage basin here.

SHELDON PLOTKIN: So it doesn't get over to Ahmanson from Area I?

ALI TABIDIAN: No. That's right. Actually, based on this map, potentially you don't get any surface runoff from Area I into Las Virgenes drainage basin or to Ahmanson Ranch area.

SPEAKER: Is there surface runoff into the west San Fernando Valley from that area?

ALI TABIDIAN: From Area I, yes. Sure.

SPEAKER: From what area of Rocketdyne would something drain into the Las Virgenes basin? Which area of Rocketdyne are you showing on this map? I'm having trouble following.

ALI TABIDIAN: Actually, potentially, surface runoff wouldn't get to Las Virgenes drainage basin.

SPEAKER: Nothing could?

ALI TABIDIAN: No. Because the Santa Susana Field Laboratory is located in a different drainage basin.

SPEAKER: Could you get water moving through fractures and joints in any of that area?

VICKI ROSEN: Why don't we --

ALI TABIDIAN: Should I continue or answer the questions or --

SPEAKER: Can I ask a quick question?

There are areas through here of oil wells, old abandoned oil wells. Could something have punctured through create a pathway that could draw down into the basin?

VICKI ROSEN: I'm going to ask you to please hold your questions until after the presentation. Could we do that?

ALI TABIDIAN: Someone asked me to talk about drinking water in Simi Valley. Like I said, before the early 1960s, local ground water was utilized extensively for drinking, for irrigation, for various purposes. Initially, water -- Colorado River water was imported to Simi for a short period of time. But after that, basically the State water project was imported to the valley. So at the present time, we -- most of the population in Simi utilizes imported water from Northern California from the State water project.

Now, this map shows the extent of impact of ground water pumped from ground water reservoirs. And in many areas, ground water actually dropped by about 200 feet, 250 feet in some areas. So we are talking about extensive ground water drawdown throughout the valley.

This map shows ground water levels during the

late '50s and early '60s. And those black-colored numbers, those are the streambed elevations. So as you see, ground water levels during the late '50s and through the '60s, many locations were from hundred to 200 feet lower than streambed. So what, basically, I'm trying to show you here is that potentially ground water reservoirs would have received water from the river.

What they are proposing here is that, based on available hydrology data, surface and ground water hydraulics and spatial distribution of soil/water perchlorate concentrations, there is no supportive data to believe that the source of perchlorate in Simi Valley area is somewhere else but the Santa Susana Field Laboratory.

Why do I think that may be the source? First, let's talk about possible off-site release modes. You could have continuously with high concentrations, or you could have release of perchlorate from Santa Susana Field Laboratory episodically with low concentrations.

Now, as we have mentioned earlier, if there was continuous release of perchlorate with high concentrations, then you would see that perchlorate in soil samples, that they were around the perimeter of Rocketdyne.

So what I think happened is that episodically

there has been some slags of radioactive water with low concentration of perchlorate, and especially if the release happened right -- it meets with a major rainfall. Suppose that we were in eight-hour rainfall period, and after two or three hours of rainfall, you had a slag of this fluid got into creek and followed by fuel, more hours of rainfall, of lower intensity rainfall, then you wouldn't -- it wouldn't be potential for perchlorate to stay in those sediments, especially -- sediments, they could contain clay minerals. And clay minerals, some of them, they are -- they are available with negative charges. And perchlorate is a negatively charged ion. So it is like two pieces of magnet. Okay. If you put opposite ends of two pieces of magnets next to each other, they're going to absorb. Okay. But if you put the similar ends, they are going to reject.

Now, if you have clay minerals in the sediments of those canyons, okay, and you have low concentration of perchlorate in that water, potential for staying would be extremely low.

Now, back to my other slides. We can actually classify sources of perchlorate that would get into ground water into three different types: Diffusive source, it would be like application of fertilizers to

Simi Valley floor, or application of imported water. If perchlorate in ground waters of Simi came through that process, you could see detectible or positive samples at many locations throughout the valley. So that's why I am ruling out that source of perchlorate would have been from imported water. Okay.

Point-source, as I discussed earlier, there were refuse dumps in Simi Valley, some domestic lagoons, industrial lagoons, those types of facilities are considered point-source. If you have a point-source for a contaminant, then you will see the highest concentration where you have the contaminant. And consistently as you get away from the source, you detect lower and lower and lower the concentration. So through all the available data, you really don't see that. Okay.

And finally, line-source. That would be Arroyo Simi. And that is where -- basically, I propose that perchlorate got into Arroyo Simi. And because of low ground water levels, it has seeped into ground water basically.

BARBARA JOHNSON: To follow up what Dr. Tabidian has just presented, I would like to quote from a draft from a public health goal for perchlorate in drinking water. And this was prepared by Pesticide Environmental

Toxicology Section, Office of the Environmental Health Hazard Assessment, California Environmental Protection Agency.

And it states "U.S. EPA 2001 recently tested a variety of fertilizers collected from representative sites around the nation and did not find perchlorate contamination to be a problem." It further states, "In general, almost all of the areas where perchlorate contamination has been detected have had some activity involving rocket engines or fuel."

ALI TABIDIAN: I am open to any type of question from anybody.

VICKI ROSEN: This is what we will do. Why don't we just open the floor to questions in general about the perchlorate discussion that we have had and anything that Gerard spoke about earlier.

And, Dr. Tabidian, you can either stand there or you can have a seat and answer questions when they come to you. However you want to do it is fine with me.

One more thing. Jonathan has a fact sheet on the health effects of perchlorate that he would like to pass out.

SHELDON PLOTKIN: There are some -- I would like to point out that the map with the concentrations, while they spelled out the 9 to 20 parts per billion

contaminations on the floor in Simi Valley, they only eluded briefly in Dr. Tabidian's presentation of the contamination on the Rocketdyne property. And it's three and 400 parts per billion in many of the wells, going as high as 700 parts per billion on the Rocketdyne property. So you need to keep those things in mind.

GERARD ABRAMS: Excuse me, Shell. There are how many wells that are active with perchlorate on the Rocketdyne site?

SHELDON PLOTKIN: My notes, which I got from Dan and I haven't compiled myself, were that he told me that 15 were contaminated on the Rocketdyne property; is that true?

GERARD ABRAMS: And where are those impacted wells?

SHELDON PLOTKIN: Dr. Tabidian, maybe you should put that chart up with the --

GERARD ABRAMS: Well, it's not the chart.

I'm asking you where those impacted wells? Where the high contamination is is where the perchlorate use area was over in Area I.

SHELDON PLOTKIN: Right.

RICHARD McJUNKIN: Well, also -- my name is Richard McJunkin, and I'm a licensed hydrogeologist with DTSC, and I was involved with a lot of collection and the trying -- and the attempt to revolve this

uncertainty about this perchlorate. And in the essence of time, we left out the details to the map that was provided in the lobby and Gerard presented, that we need to maybe further elaborate on; that, as I say, in the essence of time, we didn't show all or talk about all of the data that add a little bit more uncertainty to this situation. So we would like a couple of minutes to address a little bit more of the uncertainties here in the map that Gerard had.

JONATHAN PARFREY: In the well samples in Simi, did you test for nitrates, as well?

RICHARD McJUNKIN: No, we did not.

JONATHAN PARFREY: Okay. Because from what I understand, that is a great indicator of whether the source would be the fertilizer or it would be the rocket fuel. And so if you could get back to us on that, that would be great.

Also, a question for Dr. Tabidian about the map. I notice that there doesn't seem to be any drainage that goes directly to the east off of Area I. Is that accurate that would -- it would have moved south and then to the east out through Bell Canyon?

ALI TABIDIAN: Right.

JONATHAN PARFREY: So there is no direct flow that would go out towards the Chatsworth reservoir area from

Area I?

ALI TABIDIAN: No.

VICKI ROSEN: Did you want to refer to the map or can we proceed to the public questions?

RICHARD McJUNKIN: Before we go on to the public questions, we'd like to show the map here -- just a few more of the bits of rationale that we used in the sampling effort.

VICKI ROSEN: Can we make it pretty quick? We have a lot of people who want to ask questions.

RICHARD McJUNKIN: Okay.

VICKI ROSEN: If you would just be patient, we will be there real soon.

RICHARD McJUNKIN: When the data first began to materialize, we saw it was down at the southwest corner of Simi Valley, and it was in wells that were actually completed at different depths in the water table. And the deep wells are not contaminated. And that was an issue that all of a sudden indicated that this is probably a shallow release, it's a surface release. And Dr. Tabidian did indicate that some of the drainages he felt, you know, he alluded to a surface release, as well.

As we expanded our investigation of the wells in Simi Valley, more and more wells on the north side of

Simi Valley began to show the exposure of the concentrations of perchlorate. And think of Arroyo Simi, the drainage, it's not a divide, it's not a barrier in the subsurface literally, but it is kind of. It's difficult to get -- when you have rivers that are gaining and losing, it's difficult to get ground water to cross those barriers in a general sense. Not literally, because it will. There are exceptions. But we kind of think of Arroyo Simi as a quasi boundary.

Now, a lot of the detections are way up on the alluvial fan on the north side. That is a problem, especially if we're trying to associate it with the surface drainages from the north side of Rocketdyne from a shallow release. Because how can it go down and hit Arroyo Simi? The gradients are upward. That's why they put in the relief wells because water was coming up into people's yards and foundations and causing damage. So it's coming from the mountains, through the subsurface, and coming back up. Because there is no perchlorate in the deeper levels in the water table, it must be -- it must suggest very strongly that we have a surface release from a spill or a landfill or fertilizer or whatever it is or isn't.

That's -- so my point is these wells -- and if you look at the flow directions that we got from the

Regional Board wells on the north side of Arroyo Simi, they're pointing upgradient to the north east. That's another problem.

Now, if it's Rocketdyne from Area I, it could be going through the bedrock, down several thousand feet under the valley and coming back up on the north side of the valley. That is one way you could explain it. But that is not a very simple explanation, and we are talking about a very long, circuitous pathway. So that is not easy to explain.

Dr. Tabidian -- and I would point out how we went out and sampled these. We went out and we collected about eight to 12 pounds of dirt from the main drainage where water would flow today from the streams coming off Rocketdyne. We also collected another pair of samples on a little terrace that would be two or three feet above the present drainage, because I don't know how long ago those terraces were active, maybe 40 years ago. I don't know how much sampling for perchlorate has been done by people in this room, but I have done quite a bit of it -- not just at Rocketdyne, but at Whitaker-Bermite, in an area now called the Portobella in Santa Clarita, which is an extremely perchlorate-contaminated site. Perchlorate can last in the surface for a very long time, because we are talking

40 years over there, and it's hanging up on the sides of the canyon. You can still find it where it is exposed to rain and the elements. So it can hang around.

So Dr. Tabidian did accompany us on one of our sampling efforts. He gave us pointers, and we gave him pointers. There was a lot of open communication, and we appreciate this -- this joint effort so to speak.

But the rationale by sampling these drainages is, okay, given it's a shallow release and it's migrating via surface drainages, it's got to be coming not from spontaneous or intermittent charges, because you have a source area that is from a spill, whether it's intentional or unintentional, the source area is still there, and all the time, every rain it comes down. It does that at Whitaker-Bermite, and it does that in Las Vegas wash coming from Henderson into Lake Mead. That's the way it comes. So it's always coming down these drainages.

Whether you want to prewet the drainage and make the perchlorate go over a saturated surface and not have a tendency to go in during a storm, because it's slippery and dangerous to do during a storm, or whether you want to have the surface dry and have it go down into the drainage, but it has got to come down continuously.

But my point is that we used the judgment that it should be in the soils, and we couldn't find it. Why that one occurrence? And that was based on one sample, and it showed up 4.4 I believe it was. And we went back and duplicated five samples and got nondetects in all the samples. I'm sorry. I can't explain that.

VICKI ROSEN: We need to move on to the public questions, now.

PAULINE BATARSEH: I do need to say one thing before we leave.

If I were sitting in the audience and listening to all of this, I would be very confused. Obviously, we, as regulators, addressed some very heavy technical issues; Dr. Tabidian did the same. So before we leave tonight, I just want to make sure that everybody understands that we have been working with Dr. Tabidian. I appreciate his effort. He highlighted some things that we didn't highlight, which are potential sources for perchlorate. He mentioned the fertilizers, the fireworks and other things. And really, what it boils down to is, what are the sources, and what are the migration pathways? How has the perchlorate migrated? And as you have heard tonight, there are different interpretations.

So the bottom line is we are going to continue

working on this. We are going to continue working with the Regional Board. And we are going to share information with you, with Dr. Tabidian. And I'm sure as we continue this effort, Dr. Tabidian is going to be convinced that the data we have is not really conclusive as to whether SSFL is the source or is not the source of this.

So this is where we are at. But please, as you leave tonight, and as you have this fact sheet on the health effects of perchlorate, it is very, very important to remember it doesn't mean anything, whatever the health effects are, if there is no exposure. And this is why, as a regulatory agency, we have been concerned about drinking water. We have been looking into this. We have been asking questions about who has wells. Because this is really what is important: Is anybody being exposed? And we need to know and take action, if need be, to deal with this. So please bear this in mind. And we are going to continue to work with everybody involved, including the Regional Board, and Dr. Tabidian. Thank you.

(Court reporter changed paper.)

SPEAKER: -- we have reports about a Rocketdyne subcontractor called Ground Water Resources Consultants, Inc., and they noted that they had very high

concentrations of radionuclides in the water, and they wanted to know how to lower them. So they contacted the DHS scientists in the DHS radiation laboratory in Berkely for direction in how to handle these samples. And it was suggested, and we have the documents to back it up, that upon collecting these samples with high content of sediment, they should be allowed to settle, and then they would be decanted, and then they would be filtered. As I understand it, Greg Dempsey criticizes this technique as it skews the results.

My question is, since the EPA has stated here tonight that they plan to use a lot of Boeing Rocketdyne studies and tests because they have the most of them, are they going to be aware of this fact, and are they going to, themselves, use these kinds of techniques in terms of handling samples of water with high sediment content?

JOHN BEACH: Yes, we are aware of the issues. And we will use all the available data that we can get our hands on. We will reach out to find out what data are available. And we are aware of the issue regarding sediment in water and filtration and decanting and that sort of thing. Measuring the concentration in the whole water before it's decanted and measuring them afterwards, both of those give you important

information. And we understand what that is, and we will use that appropriately.

ARLENE KABEI: John, I need to clarify, though, that the League for Radiological Monitoring of Ground Water, including the appropriate analytical procedure and sampling procedure is going to be with DHS. We have responsibility for the soil investigation here. So when John speaks, he is speaking about -- he is aware of the issues. But I just want to be clear that we are not the lead nor do we have that jurisdiction over the ground water sampling.

JOHN BEACH: Thank you.

SPEAKER: I understand. But if Greg Dempsey of the EPA criticizes this as skewing the tests, would DHS concur with his opinion or not?

ARLENE KABEI: I don't know anything about Greg's thinking. I don't know.

SPEAKER: He said it at a quarterly meeting of this Workgroup.

ROBERT GREGER: We would have to take a look at those water samples you are talking about and what the nuclides are because some nuclides will stay in the water, so decanting will make no difference whatsoever. Other radionuclides will be in sediments. And in those situations, then you obviously want to deal with the

sediment. So it's very specific to what radionuclides you're finding.

SPEAKER: When will the public and media know what the decision on the type of testing will be? Will there be a document that will specifically point out if there is this type of technique in testing?

ROBERT GREGER: As I say, it's going to depend upon the radionuclides that you've got.

If we could talk a little bit afterwards because I'm not familiar with your -- what particular samples you're talking about.

SPEAKER: Okay. Thank you very much.

SPEAKER: I would like to ask Gerard if there are any plans to test the wells in the east side of Rocketdyne. I know you said that you don't believe there is any water flow towards the Chatsworth Reservoir, but are you planning to test the wells in the gas stations in our neighborhoods?

GERARD ABRAMS: Not right now. But that east area is where the perchlorate is -- where we know the perchlorate is on Rocketdyne, is an area that we are very actively looking at. And so that will involve installing -- expanding some of our shallow ground water work more over in that area.

Also, we want to go down some of the drainage

below where that perchlorate -- where the perchlorate has been identified in the soil, and follow it down that way. So we're interested in following up.

SPEAKER: There are a lot of streams that come through the area on an old ranch right off of Roscoe, and I wonder if that is coming down from Santa Susana.

GERARD ABRAMS: We would have to look at a topographic map to see where that might be coming from. We really want to spend a lot of time focusing on source areas at Rocketdyne because we really think it's important to, you know, continue with that work. We spent a lot of time collecting samples down in Simi Valley. We will continue to work with the Water Board to do that. But there is a lot of fundamental work that we need to continue to do at Rocketdyne also.

SPEAKER: Well, it looks like it's pretty easy to test the wells if you just go to the gas stations; is that correct?

GERARD ABRAMS: Well, yeah. You know, you have to gain access to the monitoring wells, you know, you have to bring the sampling equipment out there. You have to decontaminate it properly, collect the samples and have them analyzed.

SPEAKER: Do you have more to say about that at the next meeting?

GERARD ABRAMS: We are not at this point going to go down into Chatsworth and sample wells down there. We are going to start -- we are going to continue following up on the source area for perchlorate at Rocketdyne. And if it looks like there is contaminants on site, we will follow them in that direction.

SPEAKER: Okay. Thank you.

PAULINE BATARSEH: I want to add that we are going to be working with the Water Board on this, and we would consider your comments on this effort.

SPEAKER: My name is David Plotkin. I live in Simi Valley. My question would be I hear that we had environmental impact studies done on plants, et cetera, throughout the -- in some parts of the valley. I know that a lot of people are getting sick in Simi Valley with pretty rare diseases. While we are deciding where these leakages are occurring and how they are flowing through the soils and systems, is there any group out there that is medically looking at human life?

MIKE LOPEZ: Well, I think the ATSDR has hired Eastern Research Group, and UCLA is a subcontractor that has started to look into the community health studies aspects of it.

SPEAKER: Started?

MIKE LOPEZ: I'm sorry. I don't follow it that

closely, but I think it's in the feasibility study phase.

SPEAKER: Well, I'm looking for a study that's medically performed on, like, a reconciliation of medical and the history of people in Simi Valley, and maybe Chatsworth, as well, those types of valleys. Are we living in a hot spot? Do we know how many people are affected by these chemicals that are coming down regardless of where it's coming from?

JONATHAN PARFREY: The answer is that we don't know. And to do an epidemiological study not on a stable population but a very mobile population that would live in these areas is something that is very, very difficult to design and that's what Mr. Lopez is referring to is that there is some funding right now that is trying to see if there can be a study and design the study to try to get some significant data from people who have lived in these communities.

There have been two studies done on people who worked at the Rocketdyne facility. And those two studies were performed by the UCLA School of Public Health and they are available. Now, one can make deductions, conceivably, from those studies. But to really -- there's anecdotal information about people who have come down with diseases, but you can't necessarily

then say from the anecdotal information that there is statistically provable data regarding harms from Rocketdyne. But these two studies are available, and I would be more than happy to forward them to you.

SPEAKER: Yeah. Those are great, fantastic that they are being done on the people that worked in the area, but I'm talking about people living in this community.

What is being done to protect them regardless of where these chemicals are coming from?

SHELDON PLOTKIN: One answer to your question is we have got a problem. The problem was that when the studies were done on the Rocketdyne workers, we were promised that if the studies showed that the Rocketdyne workers were harmed by the accidents that occurred at the site, if that's what the study showed, that then a similar type of study under the same type of -- with an independent advisory panel would be done of the community. That has been stopped, and a government agency has been brought in that's going to do the study, and, again, cutting out this advisory panel altogether. And an arrangement -- they did hire UCLA, and there's some arrangements for doing some kind of a study through that. But the promise that was made originally and what the advisory -- this epidemiology advisory panel set up

for has not been honored and that's where it sits at this time.

SPEAKER: When was the promise made?

SHELDON PLOTKIN: Before the -- when the advisory panel was initially set up, I don't know what year it was. But we sat down and negotiated in Richard Katz' office, and we negotiated who would be on this advisory panel and playing games, really, with Department of Health, DHS, and as to how the panel would be structured and how many people would be on it and from which group, et cetera. And we finally wound up with I guess it's 12 people on the advisory panel.

And then we also agreed at that time that the studies would be done -- and the reason for doing the workers first is that is easier. There are records, et cetera. And for the radiation, they have got the film batches.

Then we ran into, for those of you that remember the historical -- then we ran into a little bit of a problem with the chemical exposure, the deranged employee, et cetera, losing the record, et cetera. But UCLA managed to do that work in a different way. They're very clever doing epidemiology studies.

And the end result was that the workers were damaged by the exposure to the accidents and the results

of the accidents. And -- but then we were stopped from going ahead and --

SPEAKER: By who?

SHELDON PLOTKIN: Well, first of all they said there was no money; you can't have any money. So the senator from Simi, Cathy Wright, sparked an appropriation of something like $135,000 out of the state legislature to fund the advisory panel. Then it got tied up in one of the State agencies and they couldn't release the money for some reason for a long period of time.

Finally, the money is released. And about that time, the things are set up not to use the advisory panel and not to go ahead the way it was planned originally, again saying there's insufficient money to pay for the independent epidemiologist to do the work as they did with the -- with the radioactive material and the chemical material. I can't relate to you all of the different details of the whole thing, but at the moment we are kind of stopped. And the advisory panel is still trying to do something, but just doesn't have the resources. And that's the way it is.

SPEAKER: One last quick question. It doesn't sound like we are dealing with an interest in human life here at this meeting. I would plead with the newspapers

that are here today that they -- if they could get a general hand count of the citizens that are coming down with this oddity of diseases that we haven't seen in years. I have known a lot of people myself that are coming down with Graves' disease, and that hasn't been heard of, and these people are in their 30s. I would like to see a general hand count, just people phone into the newspapers to -- just get a general hand count to see what's going on to see if we have a hot spot and maybe attack it from a different angle.

Right now I see a lot of discontent, a lot of misinformation, and people not sharing information prior to this meeting. And that's just observing this meeting as an outsider. I really don't have much to say about any individual, but I see a lot of information being kept from certain groups and that's unacceptable. We should work together.

LARRY BOWERMAN: I just want to provide a little more perspective on this question of possible community health impacts.

In 1999, the Agency for Toxic Substances and Disease Registry was asked to come in and take a look at this site to make an assessment about whether they thought it was significantly impacting the people in the community -- in the surrounding communities. In

December 1999, they issued a draft report which said that the SSFL is not an apparent public health hazard to the surrounding communities because people have not been and are not currently being exposed to chemicals and radionuclides from the site that are likely to result in adverse health effects. They also recognize that this was a preliminary report based on just the available information, and they had some follow-up recommendations. And some of those follow-up recommendations --

SPEAKER: Quit fooling yourself, fool.

SHELDON PLOTKIN: Larry, in all fairness, that presentation was absolutely clobbered in these meetings by the citizens of this community. The result of those studies are completely bogus, and the presenter of that material was practically run out of the room by the citizens that live here.

LARRY BOWERMAN: Well, I'm just trying to communicate.

SPEAKER: I would be totally embarrassed if I were you right now saying that there were a lot of people in this community with diseases that are very rare and I don't know what they're -- where the study came from, but let's get a hand count in the city because we have a problem.

LARRY BOWERMAN: I understand you're concerned about this. And one of the follow-up recommendations -- you asked about whether if anybody was going to look at systemically whether there were health effects. And one of the recommendations was that some additional looks at the cancer registry data be made. And I think, as Mike indicated, a contractor was hired, ERG, to follow up on these recommendations, and they have been working on this since I believe sometime in about the middle of the year 2000. The results of their follow-up work were supposed to be available sometime next year I believe. And once those results are available, we intend to have them come back and report on those results.

SPEAKER: I still find it unacceptable on the record. We are talking about a hundred thousand people.

VICKI ROSEN: And I would just like to ask a question.

Isn't it likely that there might be many sources of contamination throughout the valley that we haven't even looked into just as a matter of trying to look at everything that might be affecting everybody? And not to lessen any impact from the site, but aren't there possibly multiple sources of contamination?

I see somebody else with a question also.

SPEAKER: Yeah. Haven't many efforts been made,

though, to avoid looking into the community?

But my comments are actually on something else. The Ahmanson Ranch perchlorate finding, it sounds like between the DTSC and you, sirs, that the -- that it is not in agreement as far as what the sources of perchlorate in the Simi Valley side because of this drainage issue.

But on the Ahmanson finding of 28 parts per billion, which is seven times the current level, which is going down now, what can we say about that? The Ahmanson people are actually saying that it's naturally occurring. And I don't think we can explain it away by fireworks or fertilizer because it's undeveloped land. Can't we all agree that there really is no other source in the area that could explain this finding on the Ahmanson Ranch property, which is adjacent to Rocketdyne? Do -- can you agree that that really must come from Rocketdyne since it's right next door? There is no fertilizer, because it was never ever cultural. There were never fireworks, certainly, because there are no people. So what else could it possibly be? Would anyone like to comment on that?

GERARD ABRAMS: I don't have a good response, Christine. And, hopefully, you know, with some additional work out there, maybe the issue can be

resolved.

SPEAKER: You did mention that you were looking at a way to fingerprint the perchlorate. I hope that we can see that in the near future.

My other comment is to Mr. Lopez.

Earlier there were comments about the radioactive release because of the meltdown of nuclear rods I guess in 1959. And you said that that meltdown was completely contained. And I believe that there is documentation, I think presented by Mr. Hirsch in previous meetings, where the radioactive iodine that should have been contained in that sodium coolant was essentially missing or far reduced from what it should have been had it contained the radioactive nuclides from the accident.

Can you comment on that, please?

MIKE LOPEZ: I don't remember Mr. Hirsch's presentation. But based on our data from Boeing, it -- I won't retreat from my position.

SPEAKER: I think that has been said in the past.

JOHN BEACH: Excuse me, Mike. Isn't it the case that if it were released into coolant, for example, and contained within the building that it would be considered to be contained as opposed to released in the environment?

MIKE LOPEZ: Yes.

JOHN BEACH: So there is a possibility that it escaped from where it was to someplace else in the building but it was not released to the environment.

SPEAKER: And also, I think we never got any clarification of the red buildings versus the green buildings. And are they considered to be actually clean by everyone here? The buildings indicated as green on that diagram that was to be followed up, I would like to hear about that. Because if the EPA does not agree that those are actually clean enough to be released for public or unrestricted use, because this is a real issue when we have Ahmanson Ranch building a city right next door. It's very important that we understand that when we have 23,000 tons of dust, or something like that, that is going to go into the air, and we have potential contamination that no one will look at because it's not in the right spot, we have a problem. And we need to understand if that has truly been released for unrestricted use, and that that big red building left, what are we looking at there?

JOHN BEACH: The blue buildings will be included in the Area IV soil survey and --

SPEAKER: And the green buildings, as well?

JOHN BEACH: The green buildings and the red

buildings. The whole thing. And at least some of those buildings were addressed in the EPA's D&D surveys, and we will be talking about those in a later meeting.

VICKI ROSEN: Excuse me. I have just been told that the people here at the hotel are asking us to vacate this room so that they can break down the room because we only had the room until 10:00.

My suggestion is, so that we can continue this discussion, can we just move out into the hallway and still be able to answer these questions and allow them to come in here and do this. I'm sorry to have to do this but -- we move this way? Let's go ahead and move to this side of the room. Okay.

Thank you very much.

(Meeting concluded at 10:35 p.m.)

-oOo-

STATE OF CALIFORNIA)
) ss.
COUNTY OF LOS ANGELES)

I, Mark S. Patterson, CSR Certificate No. 12432, for the State of California, hereby certify:

I am the person that stenographically recorded the foregoing meeting;

The foregoing transcript is a true record of said meeting to the best of my ability.

Dated_____.

_____

Mark S. Patterson,
CSR No. 12432

ERRATA SHEET
December 11, 2002
SSFL Workgroup Meeting
Transcript

LEGEND:
Reason #1: For clarification
Reason #2: Transcription error
Reason #3: Requested information
Reason #4: To further expound on my answer
Reason #5: Other (please explain)

NAME: John Beach, EPA

The following are the corrections I have made to the meeting transcript:

PAGE #	LINE #	CORRECTION	REASON FOR CORRECTION
2	3 and 5	change "event" to "involvement"	#2
8	13	change "Workgroup" to "RCRA"	#2
9	12 & global	change "Greg" to "Gregg"	#2
15	4	change "Oakridge" to "Oak Ridge"	#2
15	20 & global	change "snap" to "SNAP"	#2
56	11	change "inadequate" to "limited and incomplete"	#5 (correct inappropriate wording)
57	1	change "If you" to "Did they"	#2
57	5	change "redoing" to "reviewing"	#2
60	18	change "have" to "achieve"	#2
61	12	change "EPA" to "EA"	#2
64	6	change "Nothers" to "Lopez"	#2
118	4	change "League" to "lead"	#2
118	4,5	"Radiological Monitoring of Ground Water" should be all lower case lettering	#2

Please return the completed errata sheet to:
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